

EVENT #116

REPORT COVER PAGE	1
CASE NARRATIVE	2
SAMPLE RESULTS SUMMARY	6
CHAIN OF CUSTODY	20
THORIUM SAMPLE AND QC DATA	23
ALPHA SAMPLE AND QC DATA.....	83
RADIUM 228 SAMPLE AND QC DATA.....	99
RADIUM 226 SAMPLE AND QC DATA.....	123
TOTAL # PAGES IN DOCUMENT	187

Kocsis, Susie

From: Kocsis, Susie
Sent: Wednesday, March 07, 2007 2:50 PM
To: 'Dahl, Karen'; 'Adam, Sherry'
Cc: Graening, Guy
Subject: Yerington Air sample name changes

Karen and Sherryl,

I just noticed that a few of the samples were named wrong on the chain of custody forms. Would you please update your system with the correct names? I will make the changes on my end - no resubmittals needed.

Even 115:

Sample P-0582 is supposed to be 000582.

Event 116:

Samples P-0583, P-0584, P-0585 are supposed to be 000583, 000584, 000585, respectively.

Thank you and let me know if you have any questions,

susie

*Susie Kocsis
Data Manager
Brown and Caldwell
10540 White Rock Road, Suite 180
Rancho Cordova, CA 95670
(916) 853-5350*

Analytical Data Package Prepared For

Brown and Caldwell

Yerington Air Quality - Event #116

Radiochemical Analysis By

STL Richland

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: STL R

Data Package Contains _____ Pages

Report No.: 34427

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
33484	EVENT 116	P-0583	J7A150137-2	JMVNW1AA	9JMVNW10	7016314
		P-0583	J7A150137-2	JMVNW1AE	9JMVNW10	7016316
		P-0583	J7A150137-2	JMVNW1AC	9JMVNW10	7016317
		P-0583	J7A150137-2	JMVNW1AD	9JMVNW10	7016318
		P-0584	J7A150137-3	JMVN11AA	9JMVN110	7016314
		P-0584	J7A150137-3	JMVN11AE	9JMVN110	7016316
		P-0584	J7A150137-3	JMVN11AC	9JMVN110	7016317
		P-0584	J7A150137-3	JMVN11AD	9JMVN110	7016318
		P-0585	J7A150137-4	JMVN41AA	9JMVN410	7016314
		P-0585	J7A150137-4	JMVN41AE	9JMVN410	7016316
		P-0585	J7A150137-4	JMVN41AC	9JMVN410	7016317
		P-0585	J7A150137-4	JMVN41AD	9JMVN410	7016318
		P-0825	J7A150137-1	JMVNQ1AA	9JMVNQ10	7016314
		P-0825	J7A150137-1	JMVNQ1AE	9JMVNQ10	7016316
		P-0825	J7A150137-1	JMVNQ1AC	9JMVNQ10	7016317
		P-0825	J7A150137-1	JMVNQ1AD	9JMVNQ10	7016318

Certificate of Analysis

February 6, 2007

Brown & Caldwell
2701 Prospect Park Drive
Rancho Cordova, CA 95670

Attention: Guy Graening

STL Richland
2800 George Washington Way
Richland, WA 99354

Tel: 509 375 3131 Fax: 509 375 5590
www.stl-inc.com

Date Received at Lab	:	January 12, 2006
Project Name	:	Air Quality Monitoring Yerington Mine
Project Number	:	121243
Event Number	:	116
PO Number	:	129682.001
Sample Type	:	Four (4) Filters
SDG Number	:	33484

CASE NARRATIVE

I. Introduction

On January 12, 2006, four filter samples were received at the STL Richland (STLR) laboratory for radiochemical analysis. Upon receipt, the samples were assigned the STLR identification numbers as described on the cover page of the Analytical Data Package report form. The samples were assigned to Lot Number J7A150137.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analysis requested was:

Alpha Spectroscopy

Thorium-228, -230, -232 by method RICH-RC-5087

Gas Proportional Counters

Gross Alpha by method STL-RICHRC5016/5014

Radium-228 by method STL RICH-RC-5005

Alpha Scintillation Counter

Radium-226 by method STL RICH-RC-5005

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Thorium-228, -230, -232:

The LCS, batch blank and sample results are within analytical requirements.

Gross Alpha Analysis:

The LCS, batch blank and sample results are within analytical requirements.

Radium-228 Analysis:

The LCS, batch blank and sample results are within analytical requirements.

Radium-226 Analysis:

The LCS, batch blank and sample results are within analytical requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:



Sherry A. Adam
Project Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	STL Richland's SOP number
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1.2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c - Combined Uncertainty.	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c the <i>combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgndCnt/BkgndCntMin) / SCntMin}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgndCnt/BkgndCntMin) / SCntMin}) + 2.71 / SCntMin * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number .
RER	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUs^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUs is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 06-Feb-07

STL Richland STL R

Ordered by Client Sample ID, Batch No.

Report No. : 34427

SDG No: 33484

Client ID	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	MDC MDA	RER2
P-0583	JMVNW1AA	TH-228	0.0396 +- 0.125	ND	pCi/sample	95%	0.291	
		TH-230	0.306 +- 0.241	=	pCi/sample	95%	0.281	
		TH-232	-0.0191 +- 0.0856	ND	pCi/sample	95%	0.229	
P-0583	JMVNW1AE	ALPHA	1.02 +- 1.80	ND	pCi/sample	100%	3.65	
P-0583	JMVNW1AC	RA-226	0.204 +- 0.230	ND	pCi/sample	99%	0.37	
P-0583	JMVNW1AD	RA-228	0.916 +- 0.805	ND	pCi/sample	87%	1.71	
P-0584	JMVN11AA	TH-228	0.0228 +- 0.151	ND	pCi/sample	96%	0.382	
		TH-230	0.176 +- 0.184	ND	pCi/sample	96%	0.264	
		TH-232	0.00000 +- 0.0983	ND	pCi/sample	96%	0.264	
P-0584	JMVN11AE	ALPHA	3.15 +- 3.11	ND	pCi/sample	100%	5.48	
P-0584	JMVN11AC	RA-226	0.630 +- 0.438	=	pCi/sample	88%	0.606	
P-0584	JMVN11AD	RA-228	0.598 +- 0.921	ND	pCi/sample	74%	2.11	
P-0585	JMVN41AA	TH-228	0.0238 +- 0.106	ND	pCi/sample	96%	0.285	
		TH-230	0.436 +- 0.303	=	pCi/sample	96%	0.275	
		TH-232	0.183 +- 0.192	ND	pCi/sample	96%	0.275	
P-0585	JMVN41AE	ALPHA	1.79 +- 2.83	ND	pCi/sample	100%	5.67	
P-0585	JMVN41AC	RA-226	0.209 +- 0.258	ND	pCi/sample	98%	0.429	
P-0585	JMVN41AD	RA-228	0.641 +- 0.949	ND	pCi/sample	76%	2.16	
P-0825	JMVNQ1AA	TH-228	0.0194 +- 0.129	ND	pCi/sample	110%	0.326	
		TH-230	0.169 +- 0.174	ND	pCi/sample	110%	0.225	
		TH-232	0.0187 +- 0.0839	ND	pCi/sample	110%	0.225	
P-0825	JMVNQ1AE	ALPHA	5.53 +- 3.61	=	pCi/sample	100%	4.94	
P-0825	JMVNQ1AC	RA-226	0.408 +- 0.239	=	pCi/sample	106%	0.282	
P-0825	JMVNQ1AD	RA-228	-0.1780 +- 0.636	ND	pCi/sample	93%	1.67	

Number of Results: 24

STL Richland

rptSTLRchSaSum
V5.1 A2002

RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{(\text{sq}(TPUs)+\text{sq}(TPUd))}]$ as defined by ICPT BOA.

= ERPIMS - Equal To, Analyte Detected

ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

QC Results Summary
STL Richland STLR
 Ordered by QC Type, Batch No.

Date: 06-Feb-07

Report No. : 34427

SDG No.: 33484

QC Type	Work Order Number	Parameter	Result +- Uncertainty (2s)	Qual	Units	Yield	Recovery	Bias	MDC MDA
BLANK QC	JMW7X1AA	TH-228	0.00000 +- 0.00869	N	pCi/sample	82%			0.0233
		TH-230	0.0356 +- 0.0248	=	pCi/sample	82%			0.0225
		TH-232	0.0113 +- 0.0137	N	pCi/sample	82%			0.0225
BLANK QC	JMW721AA	ALPHA	0.0209 +- 0.0388	N	pCi/sample	100%			0.0801
BLANK QC	JMW771AA	RA-226	0.0272 +- 0.0527	N	pCi/sample	100%			0.0946
BLANK QC	JMW781AA	RA-228	0.224 +- 0.251	N	pCi/sample	86%			0.551
LCS	JMW7X1AC	TH-230	1.96 +- 0.369	=	pCi/sample	106%	108%	0.1	0.0186
LCS	JMW721AC	ALPHA	2.19 +- 0.573	=	pCi/sample	100%	97%	0.0	0.103
LCS	JMW771AC	RA-226	1.25 +- 0.321	=	pCi/sample	93%	91%	-0.1	0.0805
LCS	JMW781AC	RA-228	4.42 +- 0.734	=	pCi/sample	79%	88%	-0.1	0.644

Number of Results: 10

FORM I
SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
Lot-Sample No.: J7A150137-2

Client Sample ID: P-0583

Yerington Air Quality - Event #116

SDG: 33484
Report No. : 34427

COC No. :

Collection Date: 12/19/2006 10:03:00 AM
Received Date: 1/12/2007 10:00:00 AM

Matrix: FILTER

AIR

Ordered by Client Sample ID, Batch No.

Parameter	Result	Count	Total	MDC MDA,	Rpt Unit,	Yield	Rst MDC,	Analysis,	Total Sa	Aliquot	Analy Method,
		Qual	Uncert(2 s)	Action Lev	Lc	CRDL(RL)	Rsv/TotUcert	Prep Date	Size	Size	Primary Detector
Batch: 7016314 Work Order: JMVNW1AA Report DB ID: 9JMVNW10											
TH-228	0.0396	ND	0.13	0.291	pCi/sample	95%	0.14	1/23/07 06:29 p	1.0	0.08294	ISOTH
TH-230	0.306	=	0.24	0.281	pCi/sample	95%	(1.1)	1/23/07 06:29 p	1.0	0.08294	ALP172
TH-232	-0.0191	ND	0.085	0.086	0.229	pCi/sample	95%	0.08	1/23/07 06:29 p	1.0	0.08294
Batch: 7016316 Work Order: JMVNW1AE Report DB ID: 9JMVNW10	ALPHA	1.02	ND	1.8	3.65	pCi/sample	100%	0.28	1/25/07 07:54 p	1.0	0.02078
Batch: 7016317 Work Order: JMVNW1AC Report DB ID: 9JMVNW10	RA-226	0.204	ND	0.23	0.23	0.37	pCi/sample	(1.1)	Sample	E900.0	GPC10B
Batch: 7016318 Work Order: JMVNW1AD Report DB ID: 9JMVNW10	RA-228	0.916	ND	0.77	0.81	1.71	pCi/sample	99%	0.55	1/31/07 02:07 p	1.0
					0.153	1.0		(1.8)	Sample	E903.1	ASC9RA
					0.728	3.1		(2.3)	Sample	E904.0	GPC4B
Number of Results: 6		Comments:									

STL Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rptSTLRcnSample = ERPIMS - Equal To, Analyte Detected
V5.1 A2002 ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
Lot-Sample No.: J7A150137-3
Client Sample ID: P-0584
Yerington Air Quality - Event #116

SDG: 33484
Report No. : 34427
COC No. :

Parameter	Result	Qual	Count	Total	MDC(MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Ordered by Client Sample ID, Batch No.	
												FILTER	A/R
Batch: 7016314 Work Order: JMVN11AA Report DB ID: 9JMVN110													
TH-228	0.0228	ND	0.15	0.15	0.382	pCi/sample	96%	0.06	1/23/07 06:29 p	1.0	0.084	Sample	ISOTH
TH-230	0.176	ND	0.18	0.18	0.264	pCi/sample	96%	0.67	1/23/07 06:29 p	1.0	0.084	Sample	ALP173
TH-232	0.00000	ND	0.0000	0.098	0.264	pCi/sample	96%	(1.9)	1/23/07 06:29 p	1.0	0.084	Sample	ISOTH
Batch: 7016316 Work Order: JMVN11AE Report DB ID: 9JMVN110													
ALPHA	3.15	ND	3.0	3.1	5.48	pCi/sample	100%	0.57	1/25/07 07:54 p	1.0	0.02089	Sample	ALP173
Batch: 7016317 Work Order: JMVN11AC Report DB ID: 9JMVN110													
RA-226	0.630	=	0.42	0.44	0.606	pCi/sample	88%	(1.)	1/31/07 02:15 p	1.0	0.2498	Sample	E903.1
Batch: 7016318 Work Order: JMVN11AD Report DB ID: 9JMVN110													
RA-228	0.598	ND	0.90	0.92	2.11	pCi/sample	74%	0.28	2/2/07 07:08 a	1.0	0.24982	Sample	ASCASC
Comments:													
Number of Results: 6													

STL Richland
rp1STLRchSample = ERPMs - Equal To, Analyte Detected
V5.1 A2002 ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
Lot-Sample No.: J7A150137-4
Client Sample ID: P-0585
 Yerington Air Quality - Event #116

SDG: 33484
Report No. : 34427
COC No. :

Parameter	Result	Qual	Count	Total Uncert(2 s)	MDC MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Ordered by Client Sample ID, Batch No.
Batch: 7016314	Work Order: JMVN41AA		Report DB ID: 9JMVN410									
TH-228	0.0238	ND	0.11	0.11	0.285	pCi/sample	96%	0.08	1/23/07 06:29 p	1.0	0.0829	ISOTH
TH-230	0.436	=	0.29	0.30	0.275	pCi/sample	96%	(1.6)	1/23/07 06:29 p	1.0	0.0829	ALP174
TH-232	0.183	ND	0.19	0.19	0.275	pCi/sample	96%	0.67	1/23/07 06:29 p	1.0	0.0829	ISOTH
Batch: 7016316	Work Order: JMVN41AE		Report DB ID: 9JMVN410									
ALPHA	1.79	ND	2.8	2.8	5.67	pCi/sample	100%	0.32	1/25/07 07:54 p	1.0	0.02074	GPC10D
Batch: 7016317	Work Order: JMVN41AC		Report DB ID: 9JMVN410									
RA-226	0.209	ND	0.25	0.26	0.429	pCi/sample	98%	0.49	1/31/07 02:16 p	1.0	0.2492	E903.1
Batch: 7016318	Work Order: JMVN41AD		Report DB ID: 9JMVN410									
RA-228	0.641	ND	0.95	0.95	2.16	pCi/sample	76%	0.3	2/2/07 07:08 a	1.0	0.24918	ASCCUB
Number of Results: 6												
Comments:												

FORM I

SAMPLE RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
Lot-Sample No.: J7A150137-1
Client Sample ID: P-0825
 Yerington Air Quality - Event #116

Parameter	Result	Count	Total	MDC MDA,	Rpt Unit,	Yield	Rst MDC,	Analysis,	Total Sa	Aliquot	Ordered by Client Sample ID, Batch No.
		Uncert(2 s)	Action Lev	CRDL(RL)	Rst/TotUcert	Prep Date	Rst/TotUcert	Prep Date	Size	Size	Analy Method, Primary Detector
Batch: 7016314 Work Order: JMVNQ1AA Report DB ID: 9JMVNQ10											
TH-228	0.0194	ND	0.13	0.13	0.326	pCi/sample	110%	0.06	1/23/07 06:29 p	1.0	0.08272
TH-230	0.169	ND	0.17	0.17	0.225	pCi/sample	110%	0.3	Sample	Sample	ISOTH ALP171
TH-232	0.0187	ND	0.084	0.084	0.225	pCi/sample	110%	0.75	1/23/07 06:29 p	1.0	0.08272
Batch: 7016316 Work Order: JMVNQ1AE Report DB ID: 9JMVNQ10	5.53	=	3.4	3.6	4.94	pCi/sample	100%	(1.9)	1/23/07 06:29 p	1.0	0.08272
RA-226	0.408	=	0.22	0.24	0.282	pCi/sample	106%	0.45	Sample	Sample	Sample ALP171
Batch: 7016317 Work Order: JMVNQ1AC Report DB ID: 9JMVNQ10											
RA-228											
Batch: 7016318 Work Order: JMVNQ1AD Report DB ID: 9JMVNQ10	-0.1780	ND	0.56	0.64	1.67	pCi/sample	93%	-0.11	2/2/07 07:08 a	1.0	E904.0 GPC4A
Number of Results:	6										
Comments:											

STL Richland MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample = ERPMIS - Equal To, Analyte Detected
 V5.1 A2002 ND Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda or Total Uncert or not identified by gamma scan software.

FORM II
BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
Lot-Sample No.: J7A160000-314

SDG: 33484
Report No.: 34427

Parameter	Result	Count	Total	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Matrix: FILTER	Analy Method, Primary Detector
Batch: 7016314 Work Order: JMW7X1AA Report DB ID: JMW7X1AB												
TH-228	0.00000	ND	0.0000	0.0087	0.0233	pCi/sample	82%	0.	1/23/07 06:29 p	1.0	1.0	ISOTH
					0.00639	1.0		0.				ALP175
TH-230	0.0356	=	0.024	0.025	0.0225	pCi/sample	82%	(1.6)	1/23/07 06:29 p	1.0	1.0	ISOTH
					0.00617	1.0		(2.9)				ALP175
TH-232	0.0113	ND	0.014	0.014	0.0225	pCi/sample	82%	0.5	1/23/07 06:29 p	1.0	1.0	ISOTH
					0.00617	1.0		(1.6)				ALP175
Number of Results: 3												
Comments:												

FORM II
BLANK RESULTS

Date: 06-Feb-07

Lab Name: **STL Richland**
Lot-Sample No.: **J7A160000-316**

SDG: 33484

Report No. : 34427

Matrix: FILTER						
Parameter	Result	Count	MDC MDA,	Rpt Unit,	Analysis,	Total Sa
		Uncert(2 s)	Lc	CRDL	Prep Date	Size
Batch: 7016316	Work Order: JMW721AA	Report DB ID: JMW721AB				
ALPHA	0.0209	ND	0.039	0.0801	pCi/sample	100%
				0.031	20.0	(1.1)
Number of Results:	1					

Comments:

FORM II
BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
 Lot-Sample No.: J7A160000-317

SDG: 33484
 Report No.: 34427

Parameter	Result	Count	Total Uncert(2 s)	MDC MDA, Lc	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Matrix: FILTER	Analy Method, Primary Detector
Batch: 7016317	Work Order: JMW771AA	Report DB ID: JMW771AB										
RA-226	0.0272	ND	0.052	0.053	0.0946	pCi/sample	100%	0.29	1/31/07 02:17 p	1.0	1.0	E903.1
Number of Results:	1			0.0397	1.0		(1.)			Sample	Sample	ASCGSA

Comments:

FORM II
BLANK RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
 Lot-Sample No.: J7A160000-318

SDG: 33484
 Report No. : 34427

Matrix: FILTER						
Parameter	Result	Count	Total	MDC MDA, Lc	Rpt Unit, CRDL	Analysis, Prep Date
Batch:	Work Order:	Report DB ID:	Uncert(2 s)	Rst/MDC, Yield	Rst/TotUncert	Total Sa Size
RA-2228	0.224	ND	0.25	0.25	0.551 pCi/sample	86% 2/2/07 07:08 a
Number of Results:	1			0.25	3.1 (1.8)	1.0 Sample

Comments:

FORM II
LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
 Lot-Sample No.: J7A160000-314

SDG: 33484

Report No. : 34427

Matrix: FILTER

Parameter	Result	Count	Total	MDC MDA	Report Unit	Yield	Expected	Recovery, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7016314	Work Order: JMW7X1AC			Report DB ID: JMW7X1CS							
TH-230	1.96	= 0.16	0.37	0.0186	pCi/sample	105.61%	1.82	0.06	108% 1/23/07 06:29 p	1.0	ISO/TH
Number of Results:				Rec Limits:	70.	130.	0.1			Sample	ALP176

Comments:

FORM II
LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
 Lot-Sample No.: J7A160000-316

SDG: 33484

Report No. : 34427

Matrix: FILTER

Parameter	Result	Count	Total	Report Unit	Yield	Expected	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7016316	Work Order:	JMW721AC	Report DB ID: JMW721CS							
ALPHA	2.19	=	0.25	0.57	0.103	pCi/sample	100.00%	2.26	0.071	97% 1/26/07 08:01 a
						Rec Limits:			0.0	
Number of Results:	1									
Comments:										

FORM II
LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
 Lot-Sample No.: J7A160000-317

SDG: 33484

Report No. : 34427

Matrix: FILTER

Parameter	Result	Count	Total	MDC MDA	Report Unit	Expected Yield	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7016317	Work Order: JMWW771AC		Report DB ID: JMWW771CS							
RA-226	1.25	=	0.17	0.32	0.0805 pCi/sample	93.44%	1.38	0.021 1/31/07 02:43 p	1.0	E903.1

Number of Results: 1

Comments:

STL Richland Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchLcs = ERP/MS - Equal To, Analyte Detected
 V5.1 A2002

FORM II
LCS RESULTS

Date: 06-Feb-07

Lab Name: STL Richland
 Lot-Sample No.: J7A160000-318

SDG: 33484
 Report No. : 34427

Matrix: FILTER

Parameter	Result	Count	Total	MDC(2 s)	MDC MDA	Report Unit	Yield	Expected	Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 7016318	Work Order: JMW781AC				Report DB ID: JMW781CS								
RA-228	4.42	=	0.53	0.73	0.644	pCi/sample	78.50%	5.04	0.15	88%	2/2/07 07:08 a	1.0	E904.0
Number of Results:	1				Rec Limits:	70.	130.	-0.1				Sample	GPC5B

Comments:

STL Richland Bias = (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchLcs = ERPIMS - Equal To, Analyte Detected
 V5.1 A2002

CHAIN OF CUSTODY



STL

Sample Check-in List

Date/Time Received: 1/12/07 10:00Client: L'Grown & Garden SDG #: NA SAF #: NA
Work Order Number: _____

Chain of Custody # _____

Shipping Container ID: _____ Air Bill #: _____

1. Custody Seals on shipping container intact? NA () Yes () No ()
2. Custody Seals dated and signed? NA () Yes () No ()
3. Chain of Custody record present? NA () Yes () No ()
4. Cooler temperature: NA () ✓ Vermiculite/packing materials is NA () ✓ Wet/dry: Yes () No ()
5. Number of samples in shipping container: 4
7. Sample holding times exceeded? NA () Yes () No ()
8. Samples have:
 tape
 custody seals
 hazard labels
 appropriate samples labels
9. Samples are:
 in good condition
 broken
 leaking
 have air bubbles
 (Only for samples requiring head space.)
10. Sample pH taken? NA () pH<2 () pH>2 () pH>9 ()
11. Sample Location, Sample Collector Listed? *
 *For documentation only. No corrective action needed Yes () No ()
12. Were any anomalies identified in sample receipt? Yes () No ()
13. Description of anomalies (include sample numbers): _____

Sample Custodian: J. SmithDate: 1/12/07 10:00

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[] No action necessary; process as is.

Project Manager _____

Date _____

THORIUM

SAMPLE AND QC DATA

Lot No., Due Date: J7A150137; 02/09/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7016314; RTHISO ThIso by ALP

SDG, Matrix: 33484; FILTER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?

Yes No N/A **2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?

Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch?

Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?

Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample?

Yes No N/A **3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits?

Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits?

Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits?

Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits?

Yes No N/A

3.5 Are the sample yields and MDAs within contract limits?

Yes No N/A **4.0 Raw Data**

4.1 Were results calculated in the correct units?

Yes No N/A

4.2 Were analysis volumes entered correctly?

Yes No N/A

4.3 Were Yields entered correctly?

Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements?

Yes No N/A

4.5 Were raw counts reviewed for anomalies?

Yes No N/A **5.0 Other**

5.1 Are all nonconformances included and noted?

Yes No N/A

5.2 Are all required forms filled out?

Yes No N/A

5.3 Was the correct methodology used?

Yes No N/A

5.4 Was transcription checked?

Yes No N/A

5.5 Were all calculations checked at a minimum frequency?

Yes No N/A

5.6 Are worksheet entries complete and correct?

Yes No N/A

6.0 Comments on any No response:

First Level Review

Pam Anderson

Date 1-25-07

**SEVERN
TRENT**

STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number:

7014314

Review Item	Yes (✓)	No (✗)	N/A (✗)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result \leq the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity \leq the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?			
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review:

Kerry A. Adam

Date: 1-25-07

STL		Sample Preparation/Analysis		Balance Id:1120373922	
536403, Brown and Caldwell Caldwell	Brown &	9N Thioo PrpRc5016, SepRC5084(5003) S1 Thorium-228,230,232 by Alpha Spec		Pipet #:	
AnalyDueDate: 02/08/2007		01 STANDARD TEST SET		Sep1 DT/Tm Tech:	
Batch: 7016314 FILTER SEQ Batch, Test: None All Tests: 7016314 9NIS1, 7016316 BAS7, 7016317 BXTE, 7016318 BXTF,	pCi/samp	PM, Quote: SA , 63174		Sep2 DT/Tm Tech:	
				Prep Tech: WoodT	
Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Detector Id
1 JMVNQ-1-AA J7A150137-1-SAMP	0.833sa	505.63sa	50.21g,in	0.0827g	THTF0953 12/18/06,pd 10/04/04,r
12/19/2006 09:42			AmtRec: FILTER	#Containers: 1	Scr: Alpha: Beta:
2 JMVNW-1-AA J7A150137-2-SAMP	0.833sa	502.76sa	50.06g,in	0.0829g	THTF0954 12/18/06,pd 10/04/04,f
12/19/2006 10:03			AmtRec: FILTER	#Containers: 1	Scr: Alpha: Beta:
3 JMVN1-1-AA J7A150137-3-SAMP	0.833sa	501.27sa	50.55g,in	0.084g	THTF0955 12/18/06,pd 10/04/04,r
12/19/2006 10:23			AmtRec: FILTER	#Containers: 1	Scr: Alpha: Beta:
4 JMVN4-1-AA J7A150137-4-SAMP	0.833sa	503.32sa	50.09g,in	0.0829g	THTF0956 12/18/06,pd 10/04/04,f
12/19/2006 10:29			AmtRec: FILTER	#Containers: 1	Scr: Alpha: Beta:
5 JMW7X-1-AA-B J7A160000-314-BLK			50.29g,in	50.29g	THTF0957 12/18/06,pd 10/04/04,I
12/19/2006 09:42			AmtRec:	#Containers: 1	Scr: Alpha: Beta:
6 JMW7X-1-AC-C J7A160000-314-LCS			50.43g,in	50.43g	THSO0102 10/16/06,pd 10/04/04,I
12/19/2006 09:42			AmtRec:	#Containers: 1	Scr: Alpha: Beta:
STL Richland Richland Wa.	Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added	ISV - Insufficient Volume for Analysis	WO Cnt: 6 Prep_SamplePrep v4.8.26	Page 1	

ICOC Fraction Transfer/Status Report

ByDate: 1/24/2006, 1/29/2007, Batch: '7016314', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
7016314					
AC		CalcC	WoodT	1/18/2007 11:39:27	
SC		wagarr	IsBatched	1/16/2007 3:40:15 PM	ICOC_RADCALC v4.8.26
SC		WoodT	Prep1C	1/18/2007 11:39:27 AM	RICH-RC-5016 REVISION 5
SC		HarveyK	InSep1	1/19/2007 8:32:28 AM	RICH-RC-5087 REV0
SC		HarveyK	Sep1C	1/23/2007 8:49:09 AM	RICH-RC-5087 REV0
SC		FABREM	Sep2C	1/23/2007 1:54:20 PM	RICH-RC-5039 REVISION 5
SC		BlackCL	InCnt1	1/23/2007 2:06:21 PM	RICH-RD-0008 REVISION 4
SC		BlackCL	CalcC	1/24/2007 6:44:01 AM	RICH-RD-0008 REVISION 4
AC		HarveyK		1/19/2007 8:32:28	
AC		HarveyK		1/23/2007 8:49:09	
AC		FABREM		1/23/2007 1:54:20 PM	
AC		BlackCL		1/23/2007 2:06:21 PM	
AC		BlackCL		1/24/2007 6:44:01	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Page 1

Grp Rec Cnt:6

ICOCFractions v4.8.26

1/24/2007 4:56:43 PM

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	LotSample RTst Qc	Client Id Analysis Date	Matrix Result	Received Date	Sample Date	Yield			Volumes
							Cnt	Uncert	Tot Uncert	
33484	9JMVN110	J7A1501373	P-0584	FILTER	1/12/2007 10:00:00	12/19/2006 10:23:00 AM				
	TH-228	9NS1 0	1/23/2007 6:29:35 PM	2.2755E-02	7.547E-02	7.549E-02	3.825E-01	PCI/SA	0.963	1.0E+0 3.4E-2
	TH-230	9NS1 0	1/23/2007 6:29:35 PM	1.7576E-01	9.059E-02	9.188E-02	2.636E-01	PCI/SA	0.963	1.0E+0 3.4E-2
	TH-232	9NS1 0	1/23/2007 6:29:35 PM	0.0E+00	0.0E+00	4.913E-02	2.636E-01	PCI/SA	0.963	1.0E+0 3.4E-2
33484	9JMVN410	J7A1501374	P-0585	FILTER	1/12/2007 10:00:00	12/19/2006 10:29:00 AM				
	TH-228	9NS1 0	1/23/2007 6:29:35 PM	2.3752E-02	5.311E-02	5.315E-02	2.849E-01	PCI/SA	0.956	1.0E+0 3.29E-2
	TH-230	9NS1 0	1/23/2007 6:29:35 PM	4.3574E-01	1.468E-01	1.517E-01	2.751E-01	PCI/SA	0.956	1.0E+0 3.29E-2
	TH-232	9NS1 0	1/23/2007 6:29:35 PM	1.8347E-01	9.456E-02	9.591E-02	2.751E-01	PCI/SA	0.956	1.0E+0 3.29E-2
33484	9JMVNQ10	J7A1501371	P-0825	FILTER	1/12/2007 10:00:00	12/19/2006 9:42:00 AM				
	TH-228	9NS1 0	1/23/2007 6:29:35 PM	1.9412E-02	6.438E-02	6.44E-02	3.263E-01	PCI/SA	1.098	1.0E+0 3.272E-2
	TH-230	9NS1 0	1/23/2007 6:29:35 PM	1.6868E-01	8.589E-02	8.706E-02	2.248E-01	PCI/SA	1.098	1.0E+0 3.272E-2
	TH-232	9NS1 0	1/23/2007 6:29:35 PM	1.8742E-02	4.191E-02	4.194E-02	2.248E-01	PCI/SA	1.098	1.0E+0 3.272E-2
33484	9JMVNW10	J7A1501372	P-0583	FILTER	1/12/2007 10:00:00	12/19/2006 10:03:00 AM				
	TH-228	9NS1 0	1/23/2007 6:29:35 PM	3.96E-02	6.261E-02	6.27E-02	2.915E-01	PCI/SA	0.95	1.0E+0 3.294E-2
	TH-230	9NS1 0	1/23/2007 6:29:35 PM	3.0588E-01	1.178E-01	1.207E-01	2.814E-01	PCI/SA	0.95	1.0E+0 3.294E-2
	TH-232	9NS1 0	1/23/2007 6:29:35 PM	-1.9117E-02	4.275E-02	4.278E-02	2.293E-01	PCI/SA	0.95	1.0E+0 3.294E-2
33484	JMW7X1AB	J7A160000314	INTRA-LAB BLANK	FILTER	1/12/2007 10:00:00	12/19/2006 9:42:00 AM				
	TH-228	9NS1 0 B	1/23/2007 6:29:35 PM	0.0E+00	0.0E+00	4.344E-03	2.331E-02	PCI/SA	0.819	1.0E+0 1.0E+0
	TH-230	9NS1 0 B	1/23/2007 6:29:35 PM	3.5641E-02	1.201E-02	1.241E-02	2.25E-02	PCI/SA	0.819	1.0E+0 1.0E+0
33484	JMW7X1CS	J7A160000314	INTRA-LAB CHECK	FILTER	1/12/2007 10:00:00	12/19/2006 9:42:00 AM				
	TH-230	9NS1 0 S	1/23/2007 6:29:35 PM	1.9571E+00	7.787E-02	1.843E-01	1.856E-02	PCI/SA	1.8159E+00	1.056 1.0E+0 1.0E+0

7016314, **Samples Inserted | Updated | NotUpdated => 6 | 0 | 0,

**Results Inserted | ReTestInserted | Updated | NotInserted => 16 | 0 | 0 | 0.

**Diff RptDb | Qtims => *wo:JMW7X1AA=>, mat:FILTER | Air *wo:JMW7X1AA=>, mat:FILTER | Air *wo:JMW7X1AA=>, mat:FILTER | Air.

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYId
ThIso by ALP Richland Standard AlpIso Wo Blk Subt.														
Calc	S1	FILTER	JMVNQ1AA	TH-228	1.94E-02	(6.44E-02)	U4	PCI/SA	R	1.11E-01	3.26E-01	✓	110%	PL
Calc	S1	FILTER	JMVNQ1AA	TH-230	1.69E-01	(8.71E-02)		PCI/SA	R	6.17E-02	2.25E-01	✓	110%	met
Calc	S1	FILTER	JMVNQ1AA	TH-232	1.87E-02	(4.19E-02)	U4	PCI/SA	R	6.17E-02	2.25E-01		110%	
Calc	S1	FILTER	JMVNW1AA	TH-228	3.96E-02	(6.27E-02)	U4	PCI/SA	R	9.21E-02	2.91E-01		95%	
Calc	S1	FILTER	JMVNW1AA	TH-230	3.06E-01	(1.21E-01)		PCI/SA	R	8.89E-02	2.81E-01		95%	
Calc	S1	FILTER	JMVNW1AA	TH-232	-1.91E-02	(4.28E-02)	U4	PCI/SA	R	6.29E-02	2.29E-01		95%	
Calc	S1	FILTER	JMVN11AA	TH-228	2.28E-02	(7.55E-02)	U4	PCI/SA	R	1.30E-01	3.82E-01		96%	
Calc	S1	FILTER	JMVN11AA	TH-230	1.76E-01	(9.19E-02)		PCI/SA	R	7.23E-02	2.64E-01		96%	
Calc	S1	FILTER	JMVN11AA	TH-232	0.00E+00	(4.91E-02)	U4	PCI/SA	R	7.23E-02	2.64E-01		96%	
Calc	S1	FILTER	JMVN41AA	TH-228	2.38E-02	(5.32E-02)	U4	PCI/SA	R	7.81E-02	2.85E-01		96%	
Calc	S1	FILTER	JMVN41AA	TH-230	4.36E-01	(1.52E-01)		PCI/SA	R	7.55E-02	2.75E-01		96%	
Calc	S1	FILTER	JMVN41AA	TH-232	1.83E-01	(9.59E-02)		PCI/SA	R	7.55E-02	2.75E-01		96%	
Calc	S1	FILTER	JMW7X1AA	TH-228	0.00E+00	(4.34E-03)	U4	PCI/SA	R	6.39E-03	2.33E-02	B	82%	
Calc	S1	FILTER	JMW7X1AA	TH-230	3.56E-02	(1.24E-02)		PCI/SA	R	6.17E-03	2.25E-02	B	82%	
Calc	S1	FILTER	JMW7X1AA	TH-232	1.13E-02	(6.84E-03)		PCI/SA	R	6.17E-03	2.25E-02	B	82%	
Calc	S1	FILTER	JMW7X1AC	TH-230	1.96E+00	(1.84E-01)		PCI/SA	R	5.09E-03	1.86E-02	S	106%	108%

Pinderson
1-24-07

Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol	
1	Calc	S1	FILTER	*STLE	AlpsowObs	JMVNQ1AA	PCI/SA	12/19/06 09:42	01/23/07 18:29		THTF0953 Alq				1	1.00 SA -	
		536403,P-0825		,J7A150137-1 v4.8.26	FILTER											0.082718 SA	
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	01/23/07 14:19	TH-228	2	3	ALP171	ED	N	N	2.9087E-01 (8.726E-03)		N	110%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.089201	1.0357E+00	
1	01/23/07 14:19	TH-229	649	2	ALP171	ED	Y	N	2.9087E-01 (8.726E-03)		N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.089201	1.0000E+00	
2	01/23/07 14:19	TH-230	5	1	ALP171	ED	N	N	2.9087E-01 (8.726E-03)		N	110%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.089201	1.0000E+00	
3	01/23/07 14:19	TH-232	1	1	ALP171	ED	N	N	2.9087E-01 (8.726E-03)		N	110%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.089201	1.0000E+00	
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Vol Used		Yield/Erfct	Chem Yld	EffCatu	IDC/LLCC	BlkLcc/MDC/MDC	StdDyMdc/Lcc
01/24/07	TH-228	R	0.019412 (0.0644)	U4	1.00112E-03 (3.3202E-03)	0.003442 (0.011417)			0.003442 (0.011417)		1.00 SA	110%		0.3223 0.110612			
01/24/07	TH-229	R	24.2895 (1.742555)	R	1.2973E+00 (5.1025E-02)	4.460406 (0.220634)			4.460406 (0.220634)		1.00 SA	110%					
01/24/07	TH-230	R	0.168678 (0.08706)	R	9.00963E-03 (4.5875E-03)	0.030975 (0.015906)			0.030975 (0.015906)		1.00 SA	110%		0.2244829 0.06166			
01/24/07	TH-232	R	0.018742 (0.041938)	U4	1.00108E-03 (2.2384E-03)	0.003442 (0.007699)			0.003442 (0.007699)		1.00 SA	110%		0.2244829 0.06166			
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol	
2	Calc	S1	FILTER	*STLE	AlpsowObs	JMVNW1AA	PCI/SA	12/19/06 10:03	01/23/07 18:29		THTF0954 Alq				1	1.00 SA -	
		536403,P-0533		,J7A150137-2 v4.8.26	FILTER											0.082942 SA	
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	01/23/07 14:19	TH-228	2	2	ALP172	ED	N	N	2.9649E-01 (8.985E-03)		N	95%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.056601	1.0357E+00	
1	01/23/07 14:19	TH-229	578	2	ALP172	ED	Y	N	2.9649E-01 (8.985E-03)		N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.056601	1.0000E+00	
2	01/23/07 14:19	TH-230	9	2	ALP172	ED	N	N	2.9649E-01 (8.985E-03)		N	95%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.056601	1.0000E+00	
3	01/23/07 14:19	TH-232	0	1	ALP172	ED	N	N	2.9649E-01 (8.985E-03)		N	95%	N	1.0000E+00 (0.000E+00)	4.5045E-01 12.056601	1.0000E+00	

{ } - {is Uncertainties}, Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - Minimum Detectable Concentration
 Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 1

RADCALC v4.8.26
 STL Richland

Batch Nbr: 7016314

Alpha Spec, Th1so by ALP , Calculated Results

1/24/2007 6:43:47 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,Effct	Chem Yld,EFctU	IDC/ILCC	BkLCC/MDC	StdDvMdc/Lcc	
0	01/24/07	TH-228	R	0.0396	U4	2.00217E-03 (0.062704)	0.00704 (3.1656E-03)	0.00704 (0.011142)	1.00 SA (0.014142)	95%		0.291451		0.092123	
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj	Decay
0	01/23/07 14:19	TH-228	2	3	ALP173	ED	N	N	2.5374E-01 (7.612E-03)	N	96%	N	1.0000E+00 (0.000E+00)	4.5045E-01	1.0357E+00
1	01/23/07 14:19	TH-229	498	4	ALP173	ED	Y	N	2.5374E-01 (7.612E-03)	N	6%		11.904346		
2	01/23/07 14:19	TH-230	4	0	ALP173	ED	N	N	2.5374E-01 (7.612E-03)	N	100%	N	1.0000E+00 (0.000E+00)	4.5045E-01	1.0000E+00
3	01/23/07 14:19	TH-232	0	0	ALP173	ED	N	N	2.5374E-01 (7.612E-03)	N	96%	N	1.0000E+00 (0.000E+00)	4.5045E-01	1.0000E+00
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,Effct	Chem Yld,EFctU	IDC/ILCC	BkLCC/MDC	StdDvMdc/Lcc	
0	01/24/07	TH-228	R	0.022755	U4	1.00112E-03 (0.075492)	0.004097 (3.3202E-03)	0.004097 (0.013592)	1.00 SA (0.014142)	96%		0.322496		0.129662	
0	01/24/07	TH-229	R	20.986198	9.9305E-01 (1.57443)	3.913647 (4.4724E-02)	3.913647 (0.211783)	1.00 SA (0.014142)	96%						
0	01/24/07	TH-230	R	0.175762	8.0085E-03 (0.091875)	0.032777 (4.1275E-03)	0.032777 (0.017049)	1.00 SA (0.014142)	96%			0.263556		0.072282	
0	01/24/07	TH-232	R	0.00E00	U4	0.00000E+00 (0.049127)	0.00E00 (2.384E-03)	0.00E00 (0.009162)	1.00 SA (0.014142)	96%		0.263556		0.072282	
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
4	Calc	S1	FILTER	*STLE AlpIsowObs	JMVN1AA	PCI/SA	12/19/06 10:29	01/23/07 18:29					1	1.00 SA	
0	01/23/07 14:19	TH-228	1	1	ALP174	ED	N	N	2.4814E-01 (7.444E-03)	N	96%	N	1.0000E+00 (0.000E+00)	4.5045E-01	1.0357E+00

{ - (1-s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLCC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration
 SR-89 Counts are Derived from the Combination of Each SR-89 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 2

STL Richland

RecCnt:4

RADCALC v4.8.26

Alpha Spec, ThIsO by ALP , Calculated Results																		
Batch Nbr: 7016314																		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm/Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EEctu	IDC/lLcC	BkLcC/MDC	StdDvMdc/LcC				
1	01/23/07 14:19	TH-229	482	0		ALP174	ED	Y	N	2.4814E-01 (7.444E-03)		N	100%	N	1.0000E+00 (0.000E+00) 4.5045E-01 12.062801			
2	01/23/07 14:19	TH-230	10	1		ALP174	ED	N	N	2.4814E-01 (7.444E-03)		N	96%	N	1.0000E+00 (0.000E+00) 4.5045E-01 12.062801			
3	01/23/07 14:19	TH-232	4	0		ALP174	ED	N	N	2.4814E-01 (7.444E-03)		N	96%	N	1.0000E+00 (0.000E+00) 4.5045E-01 12.062801			
01/24/07	TH-228	R	0.023752	U4	1.00108E-03	0.004221	0.004221	1.00 SA	96%	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.284924 0.078142			
01/24/07	TH-229	R	21.131986		9.65029E-01 (4.3967E-02)	3.889068 (0.212151)	3.889068 (0.212151)	1.00 SA	96%	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.284924 0.078142			
01/24/07	TH-230	R	0.435737		1.90203E-02 (6.4100E-03)	0.080192 (0.027609)	0.080192 (0.027609)	1.00 SA	96%	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.275111 0.075451			
01/24/07	TH-232	R	0.183468		8.00854E-03 (4.1275E-03)	0.033765 (0.017564)	0.033765 (0.017564)	1.00 SA	96%	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.009442 (0.014142)	0.275111 0.075451			
Sq	Status	Method	Matrix	Protocol	Equation Set	Wk Ord	Units/Matrix	QC/BB	Sa/On Date	Analysis/Date/PptWt:	Sep/1/Sep/2 Date	QC/Tracer	Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
5	Calc	S1	FILTER	*STLE	AlpIsoWoBS	JMW7X1AA	PCI/SA	B	12/19/06 09:42	01/23/07 18:29	THTF0957 Alq			1	1.00 SA	1.00 SA		
0,INTRALAB BLANK																		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/ValAdj	Decay	Abn
0	01/23/07 14:19	TH-228	0	0	ALP175	ED	N	N	2.9360E-01	N	82%	N	1.0000E+00	4.5045E-01	1.0357E+00			
1	01/23/07 14:19	TH-229	490	4	ALP175	ED	Y	N	(8.808E-03)	N	5%	N	1.0000E+00	4.5045E-01	1.00			
2	01/23/07 14:19	TH-230	10	1	ALP175	ED	Y	N	2.9360E-01	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00			
3	01/23/07 14:19	TH-232	3	0	ALP175	ED	N	N	2.9360E-01	N	82%	N	1.0000E+00	4.5045E-01	1.0000E+00			
01/24/07	TH-228	R	0.00E00	U4	0.00000E+00	0.00E00	0.00E00	1.00 SA	82%	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.023306 0.006392			
01/24/07	TH-229	R	1.49901		9.77042E-01 (4.4364E-02)	3.327806 (0.181107)	3.327806 (0.181107)	1.00 SA	82%	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.023306 0.006392			
01/24/07	TH-230	R	0.035641		1.90203E-02 (6.4100E-03)	0.079122 (0.02724)	0.079122 (0.02724)	1.00 SA	82%	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.022502 0.006171			
01/24/07	TH-232	R	0.011255		6.00641E-03 (3.6094E-03)	0.024986 (0.015117)	0.024986 (0.015117)	1.00 SA	82%	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.009312 (0.017321)	0.022502 0.006171			

() - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC-C - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration
 Si-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count. All Result Digits May Not be Significant. Date/Time - mm/dd/yy hh:mm. 24h Time

Batch Nbr: 7016314 **Alpha Spec, ThIso by ALP** , Calculated Results 1/24/2007 6:43:47 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
6	Calc	S1	FILTER	*STLE	ApIsowBBS	JMW7X1AC	PCI/SA	S	12/19/06 09:42	01/23/07 18:29							
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/23/07 14:19	TH-229	629	3	ALP176	ED	Y	N	2.9146E-01		N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(8.744E-03)					(0.000E+00)	1.00		
2	01/23/07 14:19	TH-230	633	1	ALP176	ED	N	N	2.9146E-01		N	106%	N	1.0000E+00	4.5045E-01	1.0000E+00	
			499.4666666	998.95			Y		(8.744E-03)					(0.000E+00)	1.00		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm	Blk	Dpm-Blk	Dpm Used	Vol Used	Yield,EntFct	Chem Yld,EFctU	IDC/LcC	B1KLcC/NDC	StdDvMdc/LcC	
01/24/07	TH-229	R	1.941666	(0.141347)	1.25634E+00	4.310503	(0.215497)	(0.215497)	4.310503	(0.215497)	(0.017321)	1.00 SA	106%				
					(5.0243E-02)												
01/24/07	TH-230	R	1.957139	(0.184337)	1.26638E+00	4.34485	(0.338542)	(0.338542)	4.34485	(0.338542)	(0.017321)	1.00 SA	106%	108%	0.01856	0.00509	
					(5.0383E-02)												

0 - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MDC - Method Decision Level in Conc Units, MDC- Minimum Detectable Concentration
 Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

**SEVERN
TRENT**

STL RICHLAND

THORIUM ISOTOPIC COUNTING REQUEST

C.R. Technician BS
Date Counted 1/23/07

C.R. Analyst CD
Date Analyzed 1/24/07

Counting Time 80
Sample BW

Background See Alpha Analysis Report

Review: 1/21/07

RICHARD0016
BRC

1/23/07

SOP's

RICHARD008

Operating:

Review: 1/21/07

RICHARD0016

WorkOrder #	ID	Activity	ROI Cts	BKG	TOTAL COUNTS			Det #	Comment
					Th-228 (5423 KeV)	Th-230 (4688 KeV)	Th-232 (4010 KeV)		
JMVWQ1A2			10	0	0	0	0	171	See Alpha Analysis Report for ROI Information
JMVWJ1A2			10	0	0	0	0	172	See Alpha Analysis Report for ROI Information
JMVWJ1A2			10	0	0	0	0	173	See Alpha Analysis Report for ROI Information
JMVWJ1A2			10	0	0	0	0	174	See Alpha Analysis Report for ROI Information
JMVWX1A2			10	0	0	0	0	175	See Alpha Analysis Report for ROI Information
JMVWX1A2			10	0	0	0	0	176	See Alpha Analysis Report for ROI Information
			10	0	0	0	0		See Alpha Analysis Report for ROI Information
			10	0	0	0	0		See Alpha Analysis Report for ROI Information
			10	0	0	0	0		See Alpha Analysis Report for ROI Information

Comments:

Alpha Analysis Report
(Version: 7-Feb-98)

Sample Identity: JMVNQ1AA

Detector: ALP171 1
Report Date: 24-Jan-07 05:53 AM
Acquire Date: 23-JAN-2007 14:19:50.73
Tracer Nuclide: TH-229
Sample Live Time: 499 minutes
Bkgrnd Live Time: 999 minutes

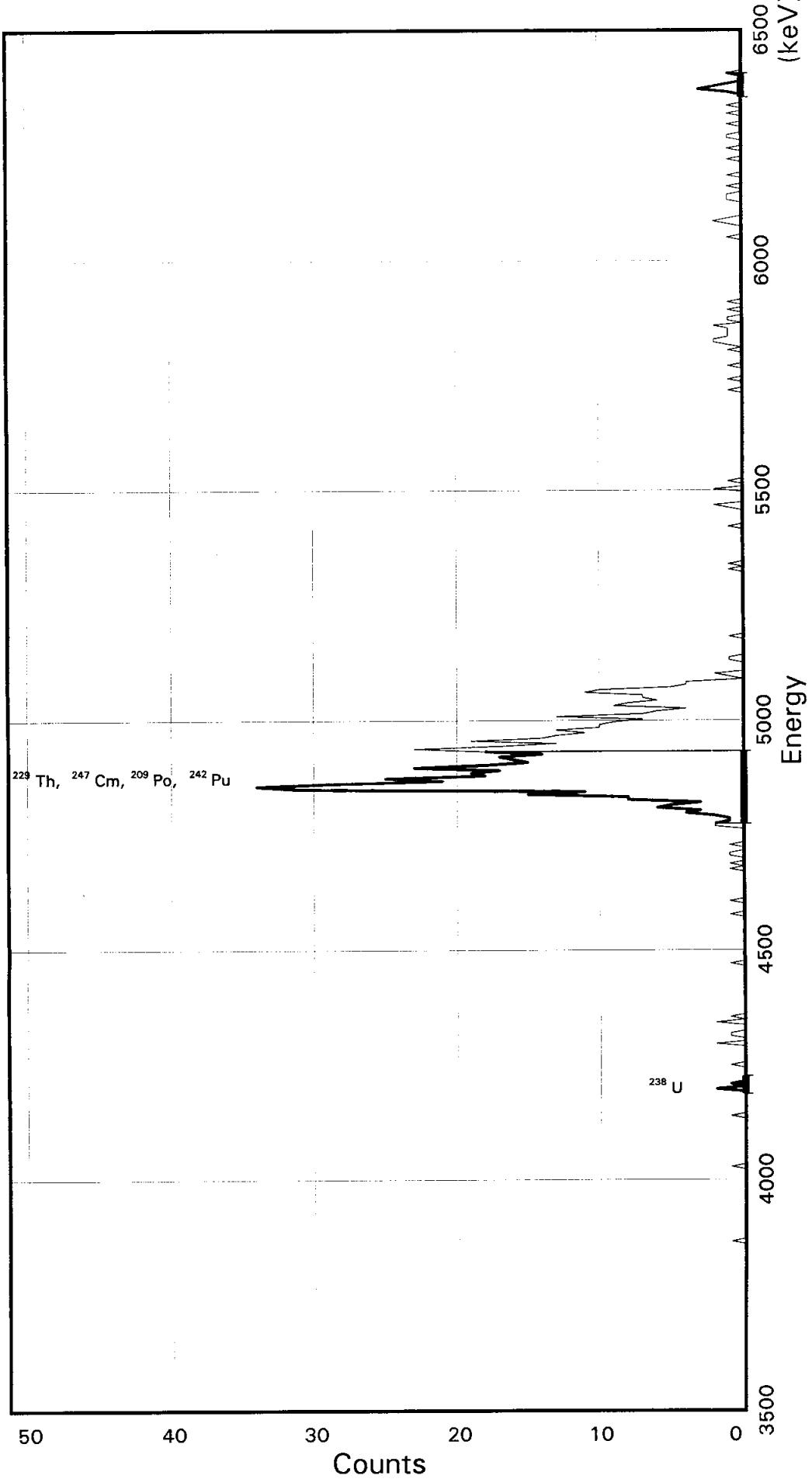
Nuclide	Smpl Count	Bkg Count	Count	Centrd Rate C/Min	Region Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	2	3	0.001	5423.2	116.4	316	336	
TH-229	649	2	1.297	4845.3	354.4	217	278	
TH-230	5	1	0.009	4687.7	116.1	190	210	
TH-232	1	1	0.001	4013.0	115.8	73	93	

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH BRC

Sample ID: JMVNQ1AA
Detector ID: ALP171 1

Batch ID: 7016314



Acquisition Start: 23-JAN-2007 14:19:50.73
Preset Live Time: 0 08:20:00.00
Elapsed Live Time: 0 08:19:28.00

Energy Coefficients:
Offset: 3.50182E+03
Slope: 5.77909E+00
Quadrature: 6.11948E-05

SAMPLE IDENTIITY: JMVNQ1AA

TITLE : TH BRC

DETECTOR : ALP171 1
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]JMVNQ1AA_230171419A.CN
F;1
ACQUIRE DATE of BACKGROUND: 14-JAN-2007 11:22:50

REPORT DATE : 23-Jan-07 SAMPLE DATE: 19-DEC-2006 12:00:00
ACQUIRE DATE: 23-JAN-2007 14:19:50 CALIB DATE : 14-JAN-2007 01:52:46

PRESET LIVE TIME: 0 08:20:00 ELAPSED LIVE TIME: 0 08:19:28

OFFSET : 3501.82 keV CONSTANT FWHM : 9.00000 Channels
SLOPE : 5.77909 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 6.119480E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: JMVNQ1AA

Flags Key

Detector:	ALP171 1	
Report Date:	23-Jan-07 10:40 PM	P: Peak Identified
Acquire Date:	23-JAN-2007 14:19:50.73	I: Peak Intersect
Tracer Nuclide:	TH-229	S: Single Non-peak Intersect
High Counts Limit:	36	M: Multiple Non-peak Intersect
Sample Live Time:	499 minutes	H: High Non-peak Sample Count
Bkgrnd Live Time:	999 minutes	A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsct	Count	Centrd	Region	Left	Rght	Wdth	Wdth	Flags	
Name	Count	Count	Count	Rate	Energy	Width	Left	Rght	Mult	Mult		
				C/Min	keV	keV	Chnl	Chnl				
PO-208	-9999	-9999		0	-10.010	5145.2	157.0	266	293	0.00	0.00	M
PO-209	343	1		0	0.686	4913.5	156.8	220	247	0.00	0.00	P
PO-210	-9999	-9999		0	-10.010	5334.7	157.1	299	326	0.00	0.00	M
AC-227	3	2		5	0.004	6068.3	157.5	425	452	0.00	0.00	S
TH-227	3	2		5	0.004	6068.3	157.5	425	452	0.00	0.00	S
TH-228	-9999	-9999		0	-10.010	5453.5	157.1	319	346	0.00	0.00	M
TH-229	343	1		0	0.686	4875.6	156.8	220	247	0.00	0.00	P
TH-230	-9999	-9999		0	-10.010	4718.0	156.7	193	220	0.00	0.00	M
TH-232	1	1		0	0.001	4043.3	162.1	76	104	0.00	0.00	
U-232	-9999	-9999		0	-10.010	5350.5	157.1	302	329	0.00	0.00	M
U-234	-9999	-9999		0	-10.010	4804.9	156.8	208	235	0.00	0.00	M I
U-235	4	2		0	0.006	4428.1	156.6	143	170	0.00	0.00	
PU-236	8	23		14	-0.007	5798.0	157.3	379	406	0.00	0.00	S
NP-237	-9999	-9999		0	-10.010	4818.3	156.8	210	237	0.00	0.00	M I
PU-238	-9999	-9999		0	-10.010	5529.4	157.2	332	359	0.00	0.00	M
U-238	4	0		0	0.008	4228.3	40.6	118	125	0.00	0.00	P
PU-239	-9999	-9999		0	-10.010	5186.9	157.0	274	301	0.00	0.00	M
AM-241	-9999	-9999		0	-10.010	5515.9	157.2	330	357	0.00	0.00	M
AM-242M	-9999	-9999		0	-10.010	5237.1	157.0	282	309	0.00	0.00	M
CM-242	-9999	-9999		0	-10.010	6143.1	157.5	438	465	0.00	0.00	M
PU-242	343	1		0	0.686	4930.8	156.8	220	247	0.00	0.00	P
AM-243	-9999	-9999		0	-10.010	5305.6	157.1	294	321	0.00	0.00	M
CM-244	10	29		14	-0.009	5835.2	157.4	385	412	0.00	0.00	S
CM-246	-9999	-9999		0	-10.010	5416.8	157.1	313	340	0.00	0.00	M
CM-247	343	1		0	0.686	4900.7	156.8	220	247	0.00	0.00	P
CM-248	-9999	-9999		0	-10.010	5108.9	156.9	260	287	0.00	0.00	M

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: JMVNQ1AA

Flags Key

Detector: ALP171 1

Intersect Region: @

Report Date: 23-Jan-07 10:40 PM

Non-Intersect Region: +, -

Acquire Date: 23-JAN-2007 14:19:50.73

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
1	0	51	0+	101	0+	151	0+	201	19	251	0@	301	0@	351	2@	401	0@	451	0	501			
2	0	52	0+	102	0+	152	0+	202	14	252	0@	302	0@	352	1@	402	0@	452	0	502			
0	3	0	53	0+	103	0+	153	1+	203	13	253	0@	303	0@	353	1@	403	1-	453	0	503		
0	4	0	54	0+	104	0+	154	0+	204	11	254	0@	304	0@	354	1@	404	1-	454	0	504		
0	5	0	55	0	105	0+	155	1+	205	13	255	0@	305	0@	355	1@	405	1-	455	0	505		
0	6	0	56	0	106	0+	156	0+	206	10	256	0@	306	0@	356	2@	406	0-	456	0	506		
0	7	0	57	0	107	0+	157	0+	207	10	257	0@	307	0@	357	0-	407	0-	457	0	507		
0	8	0	58	0	108	0+	158	1@	208	9	258	0@	308	0+	358	1-	408	1-	458	0	508		
0	9	0	59	0	109	0+	159	1@	209	7	259	0@	309	0+	359	1-	409	0-	459	0	509		
0	10	0	60	1	110	0+	160	0-	210	13+	260	0@	310	0	360	0-	410	0-	460	0	510		
0	11	0	61	0	111	0+	161	0@	211	7+	261	0@	311	0	361	0-	411	0-	461	0	511		
0	12	0	62	0	112	0+	162	1@	212	6+	262	0@	312	0	362	1-	412	1-	462	0	512		
0	13	1	63	0	113	0+	163	0@	213	4+	263	0-	313	0	363	0	413	0-	463				
0	14	0	64	0	114	0+	164	0@	214	9+	264	0@	314	0	364	0	414	0-	464				
0	15	0	65	0	115	0+	165	0@	215	8+	265	1@	315	0	365	1	415	0-	465				
0	16	0	66	0	116	0+	166	0@	216	6@	266	0@	316	0	366	0	416	0	466				
0	17	0	67	0	117	1+	167	0@	217	7@	267	1@	317	0	367	0	417	0	467				
0	18	0	68	0+	118	0+	168	0@	218	7@	268	0@	318	0	368	0	418	1	468				
0	19	0	69	0+	119	0+	169	2@	219	11@	269	0@	319	0	369	0	419	0	469				
0	20	0	70	2+	120	0+	170	2@	220	10@	270	0@	320	0	370	0	420	0	470				
0	21	0	71	0+	121	0	171	1@	221	5@	271	0@	321	0	371	0	421	0	471				
0	22	0	72	1+	122	0	172	1@	222	4@	272	0@	322	0	372	0	422	1	472				
0	23	0	73	0+	123	0	173	2@	223	4@	273	0@	323	0	373	0	423	0	473				
0	24	0	74	0+	124	0	174	4@	224	0@	274	0@	324	0	374	0	424	0	474				
0	25	0	75	0	125	0	175	3@	225	1@	275	0@	325	0	375	0@	425	0	475				
0	26	0+	76	0	126	0	176	6@	226	2@	276	0@	326	0	376	0@	426	1	476				
0	27	0+	77	0	127	0	177	5@	227	0@	277	0@	327	0	377	0@	427	1	477				
0	28	0+	78	0	128	0	178	3@	228	0@	278	0@	328	0	378	0@	428	0	478				
0	29	0+	79	1	129	0	179	8@	229	0@	279	0@	329	0+	379	0@	429	0	479				
0	30	0+	80	0	130	0	180	8@	230	0@	280	0@	330	0+	380	0@	430	0	480				
0	31	0+	81	0	131	0	181	15@	231	1@	281	1@	331	0+	381	0@	431	1	481				
0	32	0+	82	0	132	0	182	11@	232	1@	282	0@	332	1+	382	0@	432	0	482				
0	33	0+	83	0	133	0	183	31@	233	0@	283	0@	333	0+	383	0@	433	0	483				
0	34	0+	84	0	134	0	184	34@	234	0@	284	0@	334	0+	384	0@	434	0	484				
0	35	0+	85	0	135	0	185	29@	235	0@	285	0@	335	0@	385	0@	435	1	485				
0	36	0+	86	0	136	1	186	21@	236	0@	286	0@	336	1@	386	0@	436	0	486				
0	37	0+	87	2	137	0	187	25@	237	0@	287	0@	337	0@	387	0@	437	0	487				
0	38	0+	88	0	138	0	188	18@	238	0@	288	1@	338	0@	388	0-	438	1	488				
0	39	0+	89	0	139	0	189	19@	239	0@	289	2@	339	0@	389	1@	439	0	489				
0	40	0+	90	1	140	0	190	17@	240	1@	290	0@	340	0@	390	0@	440	0	490				
0	41	1+	91	1	141	1	191	23@	241	0@	291	0@	341	1@	391	0@	441	0	491				
0	42	0+	92	0	142	0	192	18@	242	0@	292	0@	342	0@	392	0@	442	0	492				
0	43	0+	93	0+	143	0+	193	15@	243	0@	293	0@	343	0@	393	0@	443	1	493				
0	44	0+	94	0+	144	0+	194	16@	244	0-	294	0@	344	0@	394	1@	444	3	494				
0	45	0+	95	2+	145	0+	195	17@	245	0@	295	2@	345	0@	395	2@	445	2	495				
0	46	0+	96	0+	146	0+	196	14@	246	0@	296	0@	346	0@	396	1@	446	1	496				
0	47	0+	97	1+	147	0+	197	18	247	0@	297	0@	347	1@	397	0@	447	0	497				
0	48	0+	98	0+	148	0+	198	23	248	0@	298	1@	348	0@	398	0@	448	0	498				
0	49	0+	99	0+	149	0+	199	17	249	0@	299	0@	349	1@	399	0@	449	0	499				
0	50	0+	100	0+	150	0+	200	13	250	0@	300	0@	350	2@	400	0@	450	1	500				

VMS Peak Search Report V1.9 Generated 23-JAN-2007 22:40:23

Configuration : \$DISK1:[ALP171.SAMPLE]JMVNQ1AA_230171419A.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRC
Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
Sample ID : JMVNQ1AA Sample quantity : 0.00000E+00 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
Start energy : 3519.16 keV End energy : 6476.76 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4199.09	4	0	23.12	120.50	118	7	1.33E-04	50.0	
2	0	4875.64	343	0	80.91	237.13	220	27	1.14E-02	5.4	
3	0	6370.65	8	0	23.12	493.83	491	9	2.67E-04	35.4	

Configuration : \$DISK1:[ALP171.SAMPLE]JMVNQ1AA_230171419A.CNF;1
 Analyses by : ALPHA V1.8,PEAKEFF V2.2,NID V3.3
 Sample title : TH BRC
 Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
 Sample ID : JMVNQ1AA Sample quantity : 0.00000E+00 SAMPLE
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 70.00

Summary of Nuclide Activity

Total number of lines in spectrum	3
Number of unidentified lines	1
Number of lines tentatively identified by NID	2
	66.67%

Nuclide Type : NP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma	%Error	Flags
PO-209	102.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
U-238	4.47E+09Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
				-----	-----	-----		
Total Activity :				0.000E+00	0.000E+00			

Nuclide Type : AP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma	%Error	Flags
TH-229	7340.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
PU-242	3.73E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
CM-247	1.56E+07Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
				-----	-----	-----		
Total Activity :				0.000E+00	0.000E+00			

Grand Total Activity : 0.000E+00 0.000E+00

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]JMVNQ1AA_230171419A.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4199.08	118	125	4	3	0.50		
4875.63	220	247	343	384	-2.21		
6370.65	491	500	8	8	0.00		

***** WARNING: Possible PEAK/ALPHA Error *****
Review Spectrum on Screen

End of Report

Alpha Analysis Report
(Version: 7-Feb-98)

Sample Identity: JMVNW1AA

Detector: ALP171 2
Report Date: 24-Jan-07 05:53 AM
Acquire Date: 23-JAN-2007 14:19:50.73
Tracer Nuclide: TH-229
Sample Live Time: 499 minutes
Bkgrnd Live Time: 999 minutes

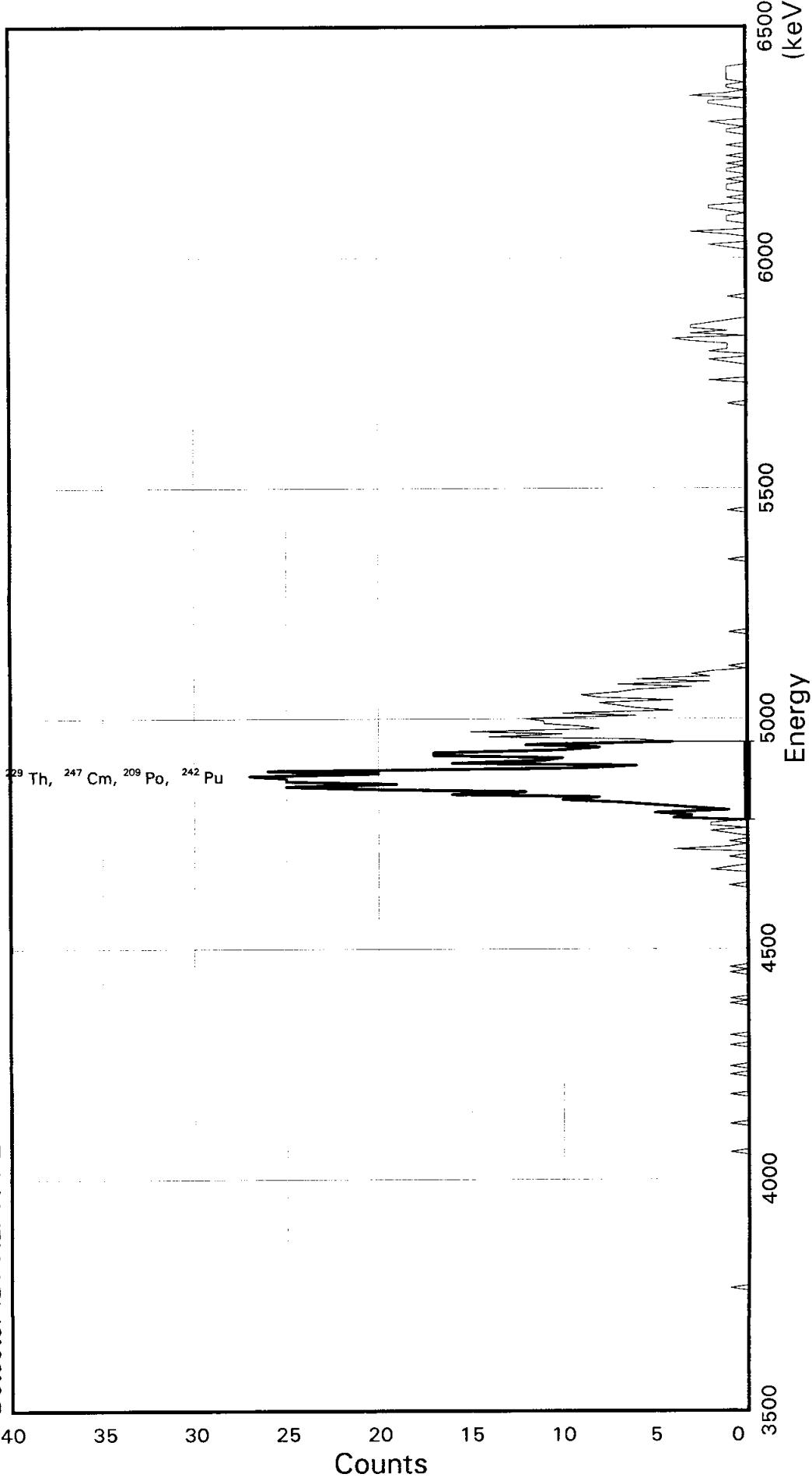
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	2	2	0.002	5423.2	113.0	320	340
TH-229	578	2	1.155	4845.3	338.7	221	281
TH-230	9	2	0.016	4687.7	112.9	190	210
TH-232	0	1	-0.001	4013.0	112.8	70	90

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH BRC

Sample ID: JMVNW1AA
Detector ID: ALP171 2

Batch ID: 7016314



Acquisition Start: 23-JAN-2007 14:19:50.73
Preset Live Time: 0 08:20:00.00
Elapsed Live Time: 0 08:19:28.00

Energy Coefficients:
Offset: 3.53385E+03
Slope: 5.63817E+00
Quadrature: 1.44569E-05

SAMPLE IDENTIITY: JMVNW1AA

TITLE : TH BRC

DETECTOR : ALP171 2
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]JMVNW1AA_230171419B.CN
F;1

ACQUIRE DATE of BACKGROUND: 14-JAN-2007 11:22:50

REPORT DATE : 23-Jan-07 SAMPLE DATE: 19-DEC-2006 12:00:00
ACQUIRE DATE: 23-JAN-2007 14:19:50 CALIB DATE : 14-JAN-2007 01:52:58

PRESET LIVE TIME: 0 08:20:00 ELAPSED LIVE TIME: 0 08:19:28

OFFSET : 3533.85 keV CONSTANT FWHM : 10.33330 Channels
SLOPE : 5.63817 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 1.445690E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: JMVNW1AA

Flags Key

Detector:	ALP171 2	P:	Peak Identified
Report Date:	23-Jan-07 10:40 PM	I:	Peak Intersect
Acquire Date:	23-JAN-2007 14:19:50.73	S:	Single Non-peak Intersect
Tracer Nuclide:	TH-229	M:	Multiple Non-peak Intersect
High Counts Limit:	36	H:	High Non-peak Sample Count
Sample Live Time:	499 minutes	A:	Altered via ALP-RGN-EDIT
Bkgnd Live Time:	999 minutes		

Nuclide	Smpl	Bkg	Intrsct	Count	Centrd	Region	Left	Rght	Wdth	Wdth	Flags
Name	Count	Count	Count	Rate	Energy	Width	Left	Rght	Mult	Mult	
				C/Min	keV	keV	Chnl	Chnl			
PO-208	-9999	-9999	0	-10.010	5145.5	169.4	269	299	0.00	0.00	M
PO-209	383	1	0	0.766	4913.8	169.4	221	251	0.00	0.00	P
PO-210	-9999	-9999	0	-10.010	5335.0	169.4	302	332	0.00	0.00	M
AC-227	10	3	13	0.016	6068.6	169.5	432	462	0.00	0.00	S
TH-227	10	3	13	0.016	6068.6	169.5	432	462	0.00	0.00	S
TH-228	-9999	-9999	0	-10.010	5453.8	169.4	323	353	0.00	0.00	M
TH-229	383	1	0	0.766	4875.9	169.4	221	251	0.00	0.00	P
TH-230	-9999	-9999	0	-10.010	4718.3	169.3	193	223	0.00	0.00	M I
TH-232	2	0	0	0.004	4043.6	174.9	73	104	0.00	0.00	
U-232	-9999	-9999	0	-10.010	5350.8	169.4	305	335	0.00	0.00	M
U-234	-9999	-9999	0	-10.010	4805.2	169.3	208	238	0.00	0.00	M I
U-235	4	2	0	0.006	4428.4	169.3	142	172	0.00	0.00	
PU-236	16	25	28	0.008	5798.3	169.5	384	414	0.00	0.00	S
NP-237	-9999	-9999	0	-10.010	4818.6	169.3	211	241	0.00	0.00	M I
PU-238	-9999	-9999	0	-10.010	5529.6	169.5	337	367	0.00	0.00	M
U-238	4	0	0	0.008	4228.6	169.2	106	136	0.00	0.00	
PU-239	-9999	-9999	0	-10.010	5187.2	169.4	276	306	0.00	0.00	M
AM-241	-9999	-9999	0	-10.010	5516.2	169.4	334	364	0.00	0.00	M
AM-242M	-9999	-9999	0	-10.010	5237.4	169.4	285	315	0.00	0.00	M
CM-242	-9999	-9999	0	-10.010	6143.3	169.5	445	475	0.00	0.00	M
PU-242	383	1	0	0.766	4931.1	169.4	221	251	0.00	0.00	P
AM-243	-9999	-9999	0	-10.010	5305.9	169.4	297	327	0.00	0.00	M
CM-244	14	23	28	0.006	5835.4	169.5	391	421	0.00	0.00	S
CM-246	-9999	-9999	0	-10.010	5417.1	169.4	317	347	0.00	0.00	M
CM-247	383	1	0	0.766	4901.0	169.4	221	251	0.00	0.00	P
CM-248	-9999	-9999	0	-10.010	5109.2	169.4	262	292	0.00	0.00	M

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: JMVNW1AA

Flags Key

Detector: ALP171 2

Intersect Region: @

Report Date: 23-Jan-07 10:40 PM

Non-Intersect Region: +, -

Acquire Date: 23-JAN-2007 14:19:50.73

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
1	0	51	0+	101	0+	151	0+	201	4	251	0@	301	0@	351	2@	401	1@	451	0	501			
2	0	52	0+	102	1+	152	2+	202	6	252	0@	302	0@	352	1@	402	1@	452	1	502			
0	3	0	53	0+	103	0+	153	1+	203	14	253	0@	303	0@	353	1@	403	1@	453	1	503		
0	4	0	54	1+	104	0+	154	0+	204	10	254	0@	304	0@	354	1@	404	0@	454	0	504		
0	5	0	55	0	105	0+	155	0+	205	15	255	0@	305	0@	355	3@	405	1@	455	1	505		
0	6	0	56	0+	106	0+	156	0+	206	8	256	0@	306	0@	356	4@	406	2@	456	1	506		
0	7	0	57	0+	107	0+	157	1+	207	9	257	0@	307	0@	357	0@	407	2@	457	1	507		
0	8	0	58	0+	108	0+	158	0@	208	11	258	0@	308	0@	358	3@	408	0@	458	1	508		
0	9	0	59	0+	109	0+	159	0@	209	11	259	0@	309	0@	359	1@	409	0@	459	1	509		
0	10	0	60	0+	110	0+	160	4@	210	12	260	0@	310	0@	360	3@	410	1@	460	1	510		
0	11	0	61	0+	111	0+	161	1-	211	6	261	0@	311	0@	361	3@	411	0@	461	0	511		
0	12	0	62	0+	112	1+	162	0@	212	10+	262	0@	312	0@	362	2@	412	0@	462	0	512		
0	13	0	63	0+	113	0+	163	1@	213	4+	263	0@	313	0@	363	1@	413	1-	463				
0	14	0	64	0+	114	1+	164	0@	214	6+	264	0@	314	0@	364	0@	414	1-	464				
0	15	0	65	1+	115	0+	165	0@	215	7+	265	0@	315	0+	365	0-	415	1-	465				
0	16	0	66	0+	116	0+	166	1@	216	8+	266	0@	316	0+	366	0-	416	0-	466				
0	17	0	67	0+	117	0+	167	2@	217	4+	267	0-	317	0+	367	0-	417	1-	467				
0	18	0	68	0+	118	0+	168	0@	218	8+	268	0@	318	0	368	0-	418	0-	468				
0	19	0	69	0+	119	0+	169	2@	219	9@	269	0@	319	0	369	0-	419	0-	469				
0	20	0	70	0+	120	0+	170	2@	220	7@	270	0@	320	0	370	0-	420	1-	470				
0	21	0	71	0+	121	0+	171	0@	221	6@	271	1@	321	0	371	0-	421	1-	471				
0	22	0	72	0+	122	0+	172	4@	222	3@	272	0@	322	0	372	1	422	0-	472				
0	23	0+	73	1+	123	0	173	3@	223	7@	273	0@	323	0	373	0	423	1-	473				
0	24	0+	74	0+	124	0	174	5@	224	2@	274	0@	324	0	374	0	424	0-	474				
0	25	0+	75	0+	125	0	175	1@	225	6@	275	0@	325	0	375	0	425	0-	475				
0	26	0+	76	1+	126	0	176	3@	226	2@	276	0@	326	0	376	0	426	1	476				
0	27	0+	77	0+	127	0	177	5@	227	3@	277	0@	327	0	377	0	427	0	477				
0	28	0+	78	0+	128	0	178	7@	228	2@	278	0@	328	0	378	0	428	0	478				
0	29	0+	79	0+	129	0	179	10@	229	0@	279	0@	329	0	379	0	429	0	479				
0	30	0+	80	0+	130	0	180	8@	230	1@	280	0@	330	0	380	0	430	1	480				
0	31	0+	81	0+	131	0	181	16@	231	0@	281	0@	331	1	381	0	431	0	481				
0	32	0+	82	0+	132	0	182	12@	232	0@	282	0@	332	0	382	0@	432	0	482				
0	33	0+	83	0+	133	0	183	20@	233	0@	283	0@	333	0	383	0@	433	0	483				
0	34	0+	84	1+	134	0	184	25@	234	0@	284	0@	334	0+	384	0@	434	0	484				
0	35	0+	85	0+	135	0	185	19@	235	0@	285	0@	335	0+	385	0@	435	1	485				
0	36	0+	86	0+	136	0	186	25@	236	0@	286	0@	336	0+	386	0@	436	1	486				
0	37	0+	87	0	137	0	187	25@	237	0@	287	0@	337	0+	387	0@	437	0	487				
0	38	0+	88	1	138	0	188	27@	238	0@	288	0@	338	0+	388	0@	438	1	488				
0	39	0+	89	0	139	0	189	20@	239	0@	289	0@	339	0+	389	0@	439	2	489				
0	40	0+	90	0	140	0	190	26@	240	0@	290	1@	340	2+	390	0@	440	0	490				
1	41	0+	91	0	141	0	191	9@	241	0@	291	0@	341	0@	391	1@	441	0	491				
0	42	0+	92	0+	142	0	192	6@	242	0@	292	0@	342	0@	392	2@	442	0	492				
0	43	1+	93	0+	143	0+	193	16@	243	1@	293	0@	343	0@	393	0@	443	0	493				
0	44	0+	94	0+	144	0+	194	11@	244	0@	294	0@	344	0@	394	0@	444	0	494				
0	45	0+	95	0+	145	0+	195	10@	245	0@	295	0@	345	0@	395	0-	445	1	495				
0	46	0+	96	0+	146	1+	196	17@	246	0@	296	0@	346	0@	396	1@	446	2	496				
0	47	0+	97	0+	147	0+	197	17@	247	0-	297	0@	347	1@	397	3@	447	2	497				
0	48	0+	98	0+	148	0+	198	10@	248	0@	298	0@	348	2@	398	0@	448	0	498				
0	49	0+	99	0+	149	0+	199	8@	249	0@	299	0@	349	0@	399	0@	449	3	499				
0	50	0+	100	1+	150	0+	200	12@	250	0@	300	0@	350	0@	400	0@	450	1	500				

VMS Peak Search Report V1.9 Generated 23-JAN-2007 22:40:31

Configuration : \$DISK1:[ALP171.SAMPLE]JMVNW1AA_230171419B.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRC
Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
Sample ID : JMVNW1AA Sample quantity : 0.00000E+00 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
Start energy : 3550.77 keV End energy : 6424.38 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4875.90	383	0	90.21	237.88	221	30	1.28E-02	5.1	

Configuration : \$DISK1:[ALP171.SAMPLE]JMVNW1AA_230171419B.CNF;1
 Analyses by : ALPHA V1.8,PEAKEFF V2.2,NID V3.3
 Sample title : TH BRC
 Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
 Sample ID : JMVNW1AA Sample quantity : 0.00000E+00 SAMPLE
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 70.00

Summary of Nuclide Activity

Total number of lines in spectrum	1
Number of unidentified lines	0
Number of lines tentatively identified by NID	1 100.00%

Nuclide Type : NP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma	%Error	Flags
PO-209	102.00Y	1.00	0.000E+00	0.000E+00	0.000E+00		0.00	
-----				-----	-----			
Total Activity : 0.000E+00				0.000E+00				

Nuclide Type : AP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma	%Error	Flags
TH-229	7340.00Y	1.00	0.000E+00	0.000E+00	0.000E+00		0.00	
PU-242	3.73E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00		0.00	
CM-247	1.56E+07Y	1.00	0.000E+00	0.000E+00	0.000E+00		0.00	
-----				-----	-----			
Total Activity : 0.000E+00				0.000E+00				
Grand Total Activity : 0.000E+00				0.000E+00				

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]JMVNWLAA_230171419B.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/ StDev	Overlap Counts	Multiplet Diff/StDev
4875.89	221	251	383	381	0.10		

End of Report

Alpha Analysis Report
(Version: 7-Feb-98)

Sample Identity: JMVN11AA

Detector: ALP171 3
Report Date: 24-Jan-07 05:54 AM
Acquire Date: 23-JAN-2007 14:19:50.73
Tracer Nuclide: TH-229
Sample Live Time: 499 minutes
Bkgrnd Live Time: 999 minutes

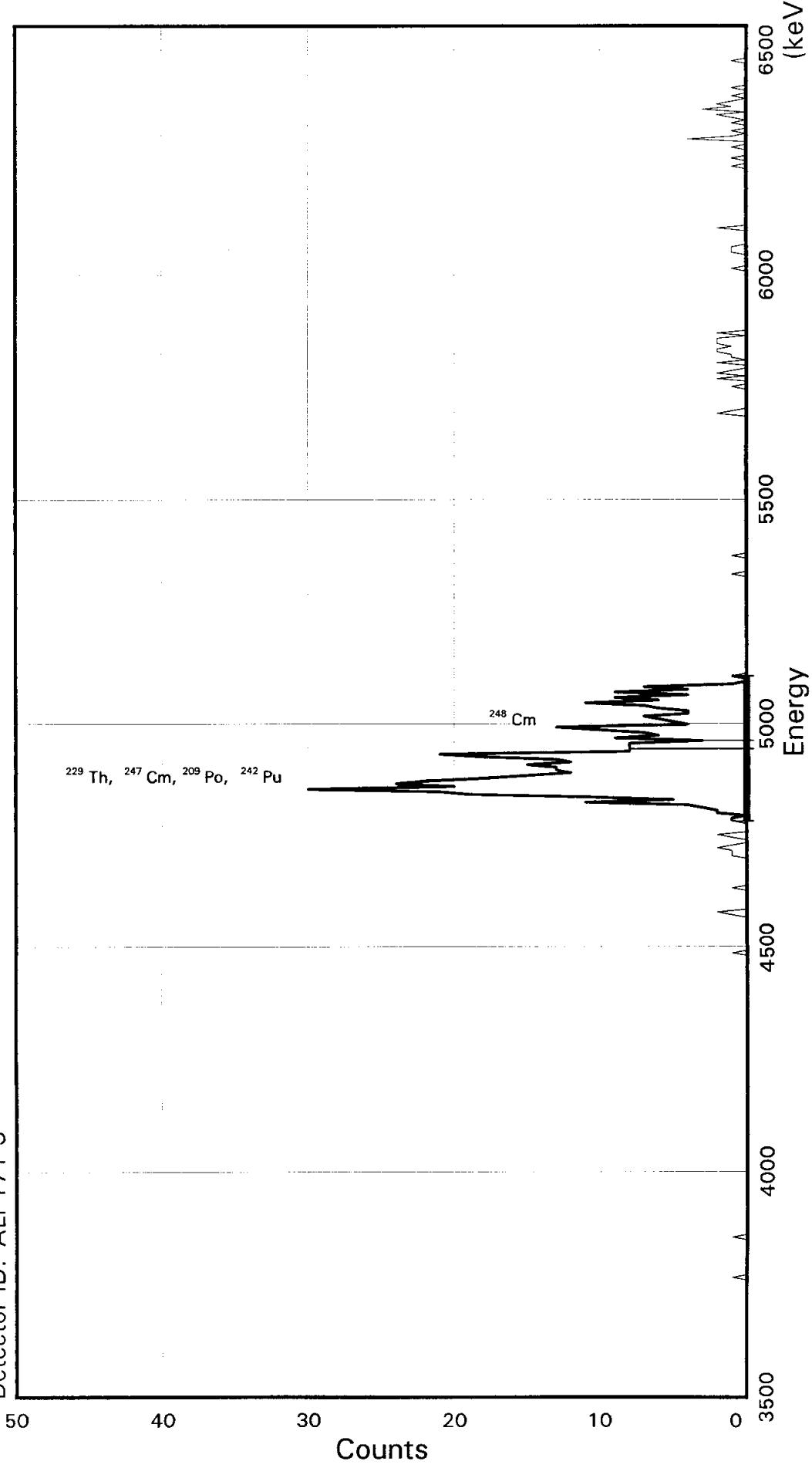
Nuclide Name	Smpl Count	Bkg Count	Count	Centrd	Region		
			Rate C/Min	Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	2	3	0.001	5423.2	119.5	308	328
TH-229	498	4	0.993	4845.3	304.4	218	269
TH-230	4	0	0.008	4687.7	119.3	185	205
TH-232	0	0	0.000	4013.0	119.1	72	92

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH BRC

Sample ID: JMVN11AA
Detector ID: ALP171 3

Batch ID: 7016314



Acquisition Start: 23-JAN-2007 14:19:50.73
Preset Live Time: 0 08:20:00.00
Elapsed Live Time: 0 08:19:28.00

Energy Coefficients:
Offset: 3.49708E+03
Slope: 5.94572E+00
Quadrature: 4.65648E-05

SAMPLE IDENTIITY: JMVN11AA

TITLE : TH BRC

DETECTOR : ALP171 3
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]JMVN11AA_230171419C.CN
F;1

ACQUIRE DATE of BACKGROUND: 14-JAN-2007 11:22:50

REPORT DATE : 23-Jan-07 SAMPLE DATE: 19-DEC-2006 12:00:00
ACQUIRE DATE: 23-JAN-2007 14:19:50 CALIB DATE : 14-JAN-2007 01:53:10

PRESET LIVE TIME: 0 08:20:00 ELAPSED LIVE TIME: 0 08:19:28

OFFSET : 3497.08 keV CONSTANT FWHM : 9.50000 Channels
SLOPE : 5.94572 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 4.656480E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: JMVN11AA

Flags Key

Detector: ALP171 3
 Report Date: 23-Jan-07 10:40 PM
 Acquire Date: 23-JAN-2007 14:19:50.73
 Tracer Nuclide: TH-229
 High Counts Limit: 36
 Sample Live Time: 499 minutes
 Bkgrnd Live Time: 999 minutes

P: Peak Identified
 I: Peak Intersect
 S: Single Non-peak Intersect
 M: Multiple Non-peak Intersect
 H: High Non-peak Sample Count
 A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsct	Count	Rate	Centrd	Region	Left	Rght	Wdth	Wdth	Flags
Name	Count	Count	Count		C/Min	Energy	Width	Left	Rght	Mult	Mult	
						keV	keV	Chnl	Chnl			
PO-208	-9999	-9999	0	-10.010	5153.0	179.1		261	291	0.00	0.00	M I
PO-209	372	3	0	0.742	4921.3	179.0		216	246	0.00	0.00	P
PO-210	-9999	-9999	0	-10.010	5342.5	179.2		293	323	0.00	0.00	M
AC-227	4	5	5	0.003	6076.1	179.6		416	446	0.00	0.00	S
TH-227	4	5	5	0.003	6076.1	179.6		416	446	0.00	0.00	S
TH-228	-9999	-9999	0	-10.010	5461.3	179.3		313	343	0.00	0.00	M
TH-229	372	3	0	0.742	4883.4	179.0		216	246	0.00	0.00	P
TH-230	-9999	-9999	0	-10.010	4725.8	178.9		190	220	0.00	0.00	M I
TH-232	0	2	0	-0.002	4051.1	178.6		76	106	0.00	0.00	
U-232	-9999	-9999	0	-10.010	5358.3	179.2		296	326	0.00	0.00	M
U-234	-9999	-9999	0	-10.010	4812.7	179.0		204	234	0.00	0.00	M I
U-235	1	0	0	0.002	4435.9	178.8		141	171	0.00	0.00	
PU-236	12	26	23	-0.003	5805.8	179.4		370	400	0.00	0.00	S
NP-237	-9999	-9999	0	-10.010	4826.1	179.0		206	236	0.00	0.00	M I
PU-238	-9999	-9999	0	-10.010	5537.1	179.3		325	355	0.00	0.00	M
U-238	0	1	0	-0.001	4236.1	178.7		107	137	0.00	0.00	
PU-239	-9999	-9999	0	-10.010	5194.7	179.2		268	298	0.00	0.00	M I
AM-241	-9999	-9999	0	-10.010	5523.7	179.3		323	353	0.00	0.00	M
AM-242M	-9999	-9999	0	-10.010	5244.9	179.2		277	307	0.00	0.00	M
CM-242	-9999	-9999	0	-10.010	6150.8	179.6		428	458	0.00	0.00	M
PU-242	372	3	0	0.742	4938.6	179.0		216	246	0.00	0.00	P
AM-243	-9999	-9999	0	-10.010	5313.4	179.2		288	318	0.00	0.00	M
CM-244	12	24	23	-0.001	5842.9	179.5		377	407	0.00	0.00	S
CM-246	-9999	-9999	0	-10.010	5424.6	179.3		307	337	0.00	0.00	M
CM-247	372	3	0	0.742	4908.5	179.0		216	246	0.00	0.00	P
CM-248	128	1	0	0.255	5116.7	161.2		243	270	0.00	0.00	P

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: JMVN11AA

Flags Key

Detector: ALP171 3

Report Date: 23-Jan-07 10:40 PM

Intersect Region: @

Acquire Date: 23-JAN-2007 14:19:50.73

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
	1	0	51	0+	101	0+	151	0+	201	13-	251	0@	301	0@	351	0-	401	0-	451	0	501					
	2	0	52	0+	102	0+	152	0+	202	4-	252	0@	302	0@	352	0-	402	0-	452	0	502					
0	3	0	53	0+	103	0+	153	1+	203	5-	253	0@	303	0@	353	0	403	0-	453	0	503					
0	4	0	54	0+	104	0+	154	1@	204	6-	254	0@	304	0+	354	0-	404	0-	454	0	504					
0	5	0	55	0+	105	0+	155	1@	205	7-	255	0@	305	0+	355	0-	405	0-	455	0	505					
0	6	0	56	0+	106	0+	156	2-	206	4-	256	0@	306	0	356	0-	406	0-	456	0	506					
0	7	0	57	0-	107	0+	157	1@	207	4-	257	0-	307	0	357	0-	407	0-	457	0	507					
0	8	0	58	0-	108	0+	158	0@	208	6-	258	1@	308	0	358	0	408	0-	458	0	508					
0	9	0	59	0-	109	0+	159	0@	209	7-	259	0@	309	0	359	0	409	0	459	0	509					
0	10	1	60	0-	110	0+	160	1@	210	11-	260	0@	310	0	360	0	410	1	460	0	510					
0	11	0	61	0-	111	0+	161	2@	211	6@	261	0@	311	0	361	0	411	0	461	0	511					
0	12	0	62	0-	112	0+	162	0@	212	9@	262	0@	312	0	362	0	412	0	462	0	512					
0	13	0	63	0-	113	0+	163	0@	213	4@	263	0@	313	0	363	0	413	1	463							
0	14	0	64	0-	114	0+	164	0@	214	9@	264	0@	314	0	364	0	414	0	464							
0	15	0	65	0-	115	0+	165	0@	215	4@	265	1@	315	0	365	0	415	0	465							
0	16	0	66	0-	116	1+	166	1@	216	7@	266	0@	316	0	366	0@	416	0	466							
0	17	0	67	0-	117	0+	167	1@	217	1@	267	0@	317	0	367	0@	417	1	467							
0	18	0	68	0-	118	0+	168	0@	218	0@	268	0@	318	2	368	0@	418	0	468							
0	19	0	69	0-	119	0+	169	2@	219	0@	269	0@	319	1	369	0@	419	0	469							
0	20	0	70	0-	120	0+	170	2@	220	1@	270	0@	320	0+	370	0@	420	4	470							
0	21	0	71	0-	121	0+	171	3@	221	0@	271	0@	321	0+	371	0@	421	1	471							
0	22	0	72	0-	122	0	172	4@	222	0@	272	0@	322	0+	372	1@	422	0	472							
0	23	0	73	0-	123	0	173	11@	223	0@	273	0@	323	0+	373	0@	423	1	473							
0	24	0	74	0-	124	0	174	5@	224	0@	274	0@	324	0+	374	0@	424	0	474							
0	25	0	75	0-	125	0	175	11@	225	0@	275	0@	325	0+	375	0@	425	0	475							
0	26	0+	76	0-	126	0	176	19@	226	0@	276	0@	326	0+	376	0@	426	1	476							
0	27	0+	77	0-	127	0	177	21@	227	0-	277	0@	327	0@	377	0@	427	0	477							
0	28	0+	78	0-	128	0	178	30@	228	0@	278	0@	328	1@	378	1-	428	1	478							
0	29	0+	79	0-	129	0	179	20@	229	0@	279	0@	329	0@	379	1@	429	2	479							
0	30	0+	80	0-	130	0	180	24@	230	0@	280	0@	330	0@	380	1@	430	0	480							
0	31	0+	81	0-	131	1	181	22@	231	0@	281	0@	331	2@	381	0@	431	3	481							
0	32	0+	82	0-	132	2	182	18@	232	0@	282	0@	332	0@	382	0@	432	1	482							
0	33	0+	83	0-	133	0	183	15@	233	0@	283	0@	333	2@	383	0@	433	2	483							
0	34	0+	84	0-	134	0	184	12@	234	0@	284	0@	334	1@	384	0@	434	1	484							
0	35	0+	85	0-	135	0	185	13@	235	0@	285	0@	335	0@	385	0@	435	0	485							
0	36	0+	86	0-	136	0	186	13@	236	0@	286	0@	336	0@	386	0@	436	1	486							
0	37	0+	87	0-	137	0	187	15@	237	0@	287	0@	337	2@	387	2@	437	0	487							
0	38	0+	88	0	138	0	188	12@	238	0-	288	0@	338	0@	388	0@	438	0	488							
0	39	0+	89	0	139	0	189	13@	239	0@	289	0@	339	1@	389	0@	439	1	489							
0	40	0+	90	0	140	0+	190	18@	240	0@	290	0@	340	1@	390	0@	440	0	490							
0	41	0+	91	0+	141	1+	191	21@	241	0@	291	0@	341	2@	391	0@	441	0	491							
0	42	0+	92	0+	142	0+	192	8@	242	0@	292	0@	342	2@	392	0@	442	0	492							
0	43	0+	93	0+	143	0+	193	8-	243	0@	293	0@	343	1@	393	0@	443	0	493							
0	44	0+	94	0+	144	0+	194	8@	244	0@	294	0@	344	2@	394	0@	444	0	494							
1	45	0+	95	0+	145	0+	195	8@	245	0@	295	0@	345	2@	395	0@	445	0	495							
0	46	0+	96	0+	146	0+	196	3-	246	0@	296	0@	346	2@	396	0@	446	0	496							
0	47	0+	97	0+	147	0+	197	9-	247	0@	297	0@	347	0@	397	0-	447	0	497							
0	48	0+	98	0+	148	0+	198	6-	248	0@	298	0@	348	2@	398	0-	448	0	498							
0	49	0+	99	0+	149	0+	199	7-	249	0@	299	0@	349	0@	399	0-	449	1	499							
0	50	0+	100	0+	150	0+	200	10-	250	0@	300	0@	350	0@	400	0-	450	0	500							

VMS Peak Search Report V1.9 Generated 23-JAN-2007 22:40:38

Configuration : \$DISK1:[ALP171.SAMPLE]JMVN11AA_230171419C.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRC
Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
Sample ID : JMVN11AA Sample quantity : 0.00000E+00 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
Start energy : 3514.92 keV End energy : 6553.50 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4883.41	372		0107.02	232.74	216	30	1.24E-02	5.2	
2	0	5009.59	128		0130.81	253.88	243	27	4.27E-03	8.8	

Configuration : \$DISK1:[ALP171.SAMPLE]JMVN11AA_230171419C.CNF;1
 Analyses by : ALPHA V1.8,PEAKEFF V2.2,NID V3.3
 Sample title : TH BRC
 Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
 Sample ID : JMVN11AA Sample quantity : 0.00000E+00 SAMPLE
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 70.00

Summary of Nuclide Activity

Total number of lines in spectrum	2
Number of unidentified lines	0
Number of lines tentatively identified by NID	2 100.00%

Nuclide Type : NP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma
					0-Sigma Error	%Error
PO-209	102.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
				-----	-----	-----
Total Activity : 0.000E+00				0.000E+00		

Nuclide Type : AP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma
					0-Sigma Error	%Error
TH-229	7340.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
PU-242	3.73E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
CM-247	1.56E+07Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
CM-248	3.39E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
				-----	-----	-----
Total Activity : 0.000E+00				0.000E+00		

Grand Total Activity : 0.000E+00 0.000E+00

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]JMVN11AA_230171419C.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/ StDev	Overlap Counts	Multiplet Diff/StDev
4883.41	216	246	372	361	0.57		
5009.58	243	270	128	167	-3.45	27	-0.04

***** WARNING: Possible PEAK/ALPHA Error *****
Review Spectrum on Screen

End of Report

Alpha Analysis Report
(Version: 7-Feb-98)

Sample Identity: JMVN41AA

Detector: ALP171 4
Report Date: 24-Jan-07 05:54 AM
Acquire Date: 23-JAN-2007 14:19:50.73
Tracer Nuclide: TH-229
Sample Live Time: 499 minutes
Bkgrnd Live Time: 999 minutes

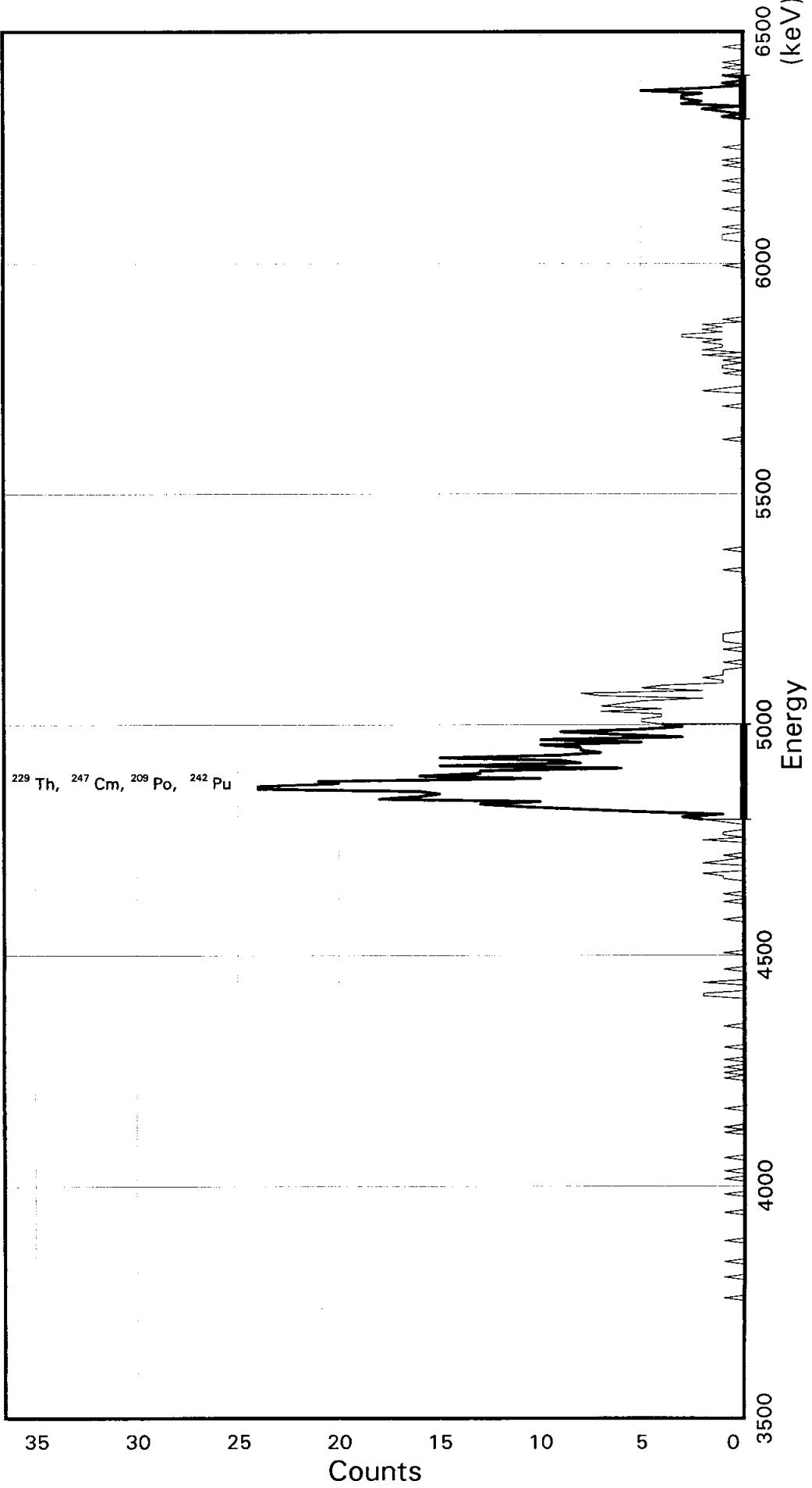
Nuclide	Smpl Count	Bkg Count	Count	Centrd Rate C/Min	Region Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	1	1	0.001	5423.2	111.1	307	327	
TH-229	482	0	0.965	4845.3	344.9	206	268	
TH-230	10	1	0.019	4687.7	111.3	175	195	
TH-232	4	0	0.008	4013.0	111.6	54	74	

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH BRC

Sample ID: JMVN41AA
Detector ID: ALP171 4

Batch ID: 7016314



Acquisition Start: 23-JAN-2007 14:19:50.73
Preset Live Time: 0 08:20:00.00
Elapsed Live Time: 0 08:19:28.00

Energy Coefficients:
Offset: 3.63058E + 03
Slope: 5.58318E + 00
Quadrature: -4.43354E-05

SAMPLE IDENTIITY: JMVN41AA

TITLE : TH BRC

DETECTOR : ALP171 4
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]JMVN41AA_230171419D.CN
F;1

ACQUIRE DATE of BACKGROUND: 14-JAN-2007 11:22:50

REPORT DATE : 23-Jan-07 SAMPLE DATE: 19-DEC-2006 12:00:00
ACQUIRE DATE: 23-JAN-2007 14:19:50 CALIB DATE : 14-JAN-2007 01:53:20

PRESET LIVE TIME: 0 08:20:00 ELAPSED LIVE TIME: 0 08:19:28

OFFSET : 3630.58 keV CONSTANT FWHM : 10.83330 Channels
SLOPE : 5.58318 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : -.443354E-04 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: JMVN41AA

Flags Key

Detector: ALP171 4	
Report Date: 23-Jan-07 10:40 PM	P: Peak Identified
Acquire Date: 23-JAN-2007 14:19:50.73	I: Peak Intersect
Tracer Nuclide: TH-229	S: Single Non-peak Intersect
High Counts Limit: 36	M: Multiple Non-peak Intersect
Sample Live Time: 499 minutes	H: High Non-peak Sample Count
Bkgrnd Live Time: 999 minutes	A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsct	Count	Centrd	Region	Left	Rght	Wdth	Wdth	Flags
Name	Count	Count	Count		Energy	Width	Left	Rght	Mult	Mult	
					keV	keV	Chnl	Chnl			
PO-208	-9999	-9999	0	-10.010	5144.7	205.7	257	294	0.00	0.00	M
PO-209	423	0	0	0.847	4913.0	205.8	209	246	0.00	0.00	P
PO-210	-9999	-9999	0	-10.010	5334.2	205.6	292	329	0.00	0.00	M
AC-227	6	6	5	0.006	6067.8	205.1	424	461	0.00	0.00	S
TH-227	6	6	5	0.006	6067.8	205.1	424	461	0.00	0.00	S
TH-228	-9999	-9999	0	-10.010	5453.0	205.5	313	350	0.00	0.00	M
TH-229	423	0	0	0.847	4875.1	205.8	209	246	0.00	0.00	P
TH-230	-9999	-9999	0	-10.010	4717.5	205.9	181	218	0.00	0.00	M I
TH-232	7	1	1	0.013	4042.8	206.3	60	97	0.00	0.00	S
U-232	-9999	-9999	0	-10.010	5350.0	205.6	294	331	0.00	0.00	M
U-234	-9999	-9999	0	-10.010	4804.4	205.9	196	233	0.00	0.00	M I
U-235	8	1	0	0.015	4427.6	206.1	129	166	0.00	0.00	S
PU-236	16	24	26	0.009	5797.5	205.3	375	412	0.00	0.00	S
NP-237	-9999	-9999	0	-10.010	4817.8	205.9	199	236	0.00	0.00	M I
PU-238	-9999	-9999	0	-10.010	5528.8	205.4	327	364	0.00	0.00	M
U-238	-9999	-9999	0	-10.010	4227.8	206.2	93	130	0.00	0.00	M
PU-239	-9999	-9999	0	-10.010	5186.4	205.6	265	302	0.00	0.00	M
AM-241	-9999	-9999	0	-10.010	5515.4	205.5	324	361	0.00	0.00	M
AM-242M	-9999	-9999	0	-10.010	5236.6	205.6	274	311	0.00	0.00	M
CM-242	-9999	-9999	0	-10.010	6142.5	205.1	437	474	0.00	0.00	M
PU-242	423	0	0	0.847	4930.3	205.8	209	246	0.00	0.00	P
AM-243	-9999	-9999	0	-10.010	5305.1	205.6	286	323	0.00	0.00	M
CM-244	13	24	26	0.003	5834.6	205.3	382	419	0.00	0.00	S
CM-246	-9999	-9999	0	-10.010	5416.3	205.5	306	343	0.00	0.00	M
CM-247	423	0	0	0.847	4900.2	205.8	209	246	0.00	0.00	P
CM-248	-9999	-9999	0	-10.010	5108.4	205.7	251	288	0.00	0.00	M

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: JMVN41AA

Flags Key

Detector: ALP171 4

Report Date: 23 Jan-07 10:40 PM

Intersect Region: *

Acquire Date: 23 JAN-2007 14:19:50.73

Non-Intersect Region: +,

Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	Cnt F Chn	
1 0 51	0- 101	0+ 151	2@ 201	7+ 251	0@ 301	0@ 351	1@ 401	0@ 451	0 501											
2 0 52	0- 102	0+ 152	0@ 202	4+ 252	0@ 302	0@ 352	2@ 402	0@ 452	1 502											
0 3 0 53	0- 103	0+ 153	1@ 203	7+ 253	0@ 303	0@ 353	0@ 403	0@ 453	0 503											
0 4 0 54	0- 104	0+ 154	1@ 204	6+ 254	0@ 304	0@ 354	1@ 404	1@ 454	1 504											
0 5 0 55	0- 105	0+ 155	0@ 205	5+ 255	0@ 305	0@ 355	0@ 405	0@ 455	0 505											
0 6 1 56	0- 106	0+ 156	0@ 206	2+ 256	1- 306	0@ 356	0@ 406	0@ 456	0 506											
0 7 0 57	0- 107	1+ 157	0@ 207	7@ 257	0@ 307	1@ 357	0@ 407	0@ 457	0 507											
0 8 0 58	1- 108	0+ 158	1@ 208	8@ 258	0@ 308	0@ 358	0@ 408	1@ 458	0 508											
0 9 0 59	0- 109	0+ 159	2@ 209	2@ 259	0@ 309	0@ 359	0@ 409	0@ 459	0 509											
0 10 0+ 60	1- 110	0+ 160	3@ 210	5@ 260	0@ 310	0@ 360	0@ 410	0@ 460	1 510											
0 11 0+ 61	0- 111	0+ 161	1@ 211	4@ 261	0@ 311	0@ 361	0@ 411	0@ 461	0 511											
0 12 0+ 62	1- 112	0+ 162	5@ 212	1@ 262	0@ 312	0+ 362	0@ 412	0- 462	0 512											
0 13 1+ 63	0- 113	0+ 163	8@ 213	1@ 263	0@ 313	0+ 363	0- 413	0- 463												
0 14 0+ 64	0- 114	0+ 164	11@ 214	2@ 264	1@ 314	0+ 364	0- 414	1- 464												
0 15 0+ 65	1- 115	0+ 165	13@ 215	1@ 265	0@ 315	0 365	0- 415	0- 465												
0 16 0+ 66	0- 116	0+ 166	10@ 216	1@ 266	0@ 316	0 366	0- 416	1- 466												
0 17 0+ 67	0- 117	0 167	18@ 217	1@ 267	0@ 317	0 367	0- 417	0- 467												
0 18 0+ 68	0- 118	0 168	16@ 218	0@ 268	0@ 318	0 368	0- 418	0- 468												
0 19 1+ 69	0- 119	0 169	15@ 219	0@ 269	0@ 319	0 369	0- 419	0- 469												
0 20 0+ 70	1- 120	1 170	16@ 220	1@ 270	0@ 320	1 370	0 420	0- 470												
0 21 0+ 71	0- 121	0 171	24@ 221	0@ 271	0@ 321	0 371	0 421	1- 471												
0 22 1+ 72	0- 122	0 172	24@ 222	0@ 272	0@ 322	0 372	0 422	0- 472												
1 23 0+ 73	0- 123	0 173	20@ 223	0@ 273	0@ 323	0 373	0 423	0- 473												
0 24 0+ 74	0- 124	0 174	21@ 224	0@ 274	0@ 324	0 374	0@ 424	0- 474												
0 25 0+ 75	0- 125	0 175	10@ 225	1@ 275	0@ 325	0+ 375	1@ 425	0 475												
0 26 0+ 76	0- 126	0 176	16@ 226	0@ 276	0@ 326	2+ 376	0@ 426	0 476												
0 27 1+ 77	0- 127	1 177	13@ 227	0@ 277	0@ 327	1+ 377	0@ 427	0 477												
0 28 0+ 78	1- 128	0 178	13@ 228	1@ 278	0@ 328	0+ 378	0@ 428	0 478												
0 29 0+ 79	0@ 129	0 179	6@ 229	1@ 279	0@ 329	0+ 379	0@ 429	0 479												
0 30 0+ 80	0@ 130	1 180	15@ 230	1@ 280	0@ 330	0+ 380	0@ 430	0 480												
1 31 0+ 81	0+ 131	0+ 181	8@ 231	1@ 281	0@ 331	0+ 381	0@ 431	0 481												
0 32 0+ 82	0+ 132	0+ 182	9@ 232	0@ 282	0@ 332	0@ 382	0@ 432	0 482												
0 33 0+ 83	0+ 133	0+ 183	15@ 233	0@ 283	0@ 333	1@ 383	0@ 433	1 483												
0 34 0+ 84	0+ 134	0+ 184	9@ 234	0@ 284	0@ 334	0@ 384	0@ 434	0 484												
0 35 0+ 85	0+ 135	0+ 185	7@ 235	0@ 285	0@ 335	1@ 385	1@ 435	1 485												
0 36 0+ 86	0+ 136	1+ 186	8@ 236	0@ 286	0@ 336	1@ 386	1@ 436	2 486												
1 37 1+ 87	0+ 137	1+ 187	8@ 237	0@ 287	0@ 337	0@ 387	1- 437	0 487												
0 38 0+ 88	0+ 138	2+ 188	10@ 238	0@ 288	0@ 338	1@ 388	0@ 438	3 488												
0 39 1+ 89	0+ 139	0+ 189	5@ 239	0@ 289	0@ 339	0@ 389	0@ 439	2 489												
0 40 0+ 90	2+ 140	0+ 190	10@ 240	0@ 290	0@ 340	2@ 390	1@ 440	3 490												
0 41 0+ 91	2+ 141	0+ 191	3@ 241	0@ 291	0@ 341	0@ 391	0@ 441	3 491												
0 42 0+ 92	0+ 142	2+ 192	6@ 242	0@ 292	0@ 342	2@ 392	0@ 442	2 492												
0 43 0@ 93	0+ 143	1+ 193	9@ 243	0@ 293	0@ 343	1@ 393	0@ 443	5 493												
0 44 0@ 94	0+ 144	0+ 194	5@ 244	0@ 294	0@ 344	1@ 394	0@ 444	2 494												
1 45 0@ 95	2+ 145	1+ 195	3@ 245	0@ 295	0@ 345	2@ 395	0@ 445	0 495												
0 46 1@ 96	0+ 146	0@ 196	4 246	0@ 296	0@ 346	1@ 396	0@ 446	1 496												
0 47 0@ 97	0+ 147	0@ 197	5 247	0@ 297	0@ 347	3@ 397	1@ 447	0 497												
0 48 0- 98	0+ 148	0@ 198	5 248	0@ 298	0@ 348	3@ 398	0@ 448	0 498												
0 49 0- 99	0+ 149	0- 199	4 249	0@ 299	0@ 349	1@ 399	0@ 449	1 499												
0 50 0- 100	1+ 150	0@ 200	4 250	0@ 300	0@ 350	2@ 400	0@ 450	0 500												

VMS Peak Search Report V1.9 Generated 23-JAN-2007 22:40:42

Configuration : \$DISK1:[ALP171.SAMPLE]JMVN41AA_230171419D.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRC
Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
Sample ID : JMVN41AA Sample quantity : 0.00000E+00 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
Start energy : 3647.33 keV End energy : 6477.55 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4875.12	423		0106.08	223.30	209	37	1.41E-02	4.9	
2	0	6361.85	25		0 39.08	491.11	482	17	8.34E-04	20.0	

Configuration : \$DISK1:[ALP171.SAMPLE]JMVN41AA_230171419D.CNF;1
 Analyses by : ALPHA V1.8,PEAKEFF V2.2,NID V3.3
 Sample title : TH BRC
 Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
 Sample ID : JMVN41AA Sample quantity : 0.00000E+00 SAMPLE
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 70.00

Summary of Nuclide Activity

Total number of lines in spectrum	2
Number of unidentified lines	1
Number of lines tentatively identified by NID	1 50.00%

Nuclide Type : NP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma
					0-Sigma Error	%Error Flags
PO-209	102.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
				-----	-----	-----
Total Activity :				0.000E+00	0.000E+00	

Nuclide Type : AP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma
					0-Sigma Error	%Error Flags
TH-229	7340.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
PU-242	3.73E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
CM-247	1.56E+07Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
				-----	-----	-----
Total Activity :				0.000E+00	0.000E+00	
Grand Total Activity :				0.000E+00	0.000E+00	

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]JMVN41AA_230171419D.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/ StDev	Overlap Counts	Multiplet Diff/StDev
4875.11	209	246	423	399	1.17		
6361.84	482	499	25	26	-0.20		

***** WARNING: Possible PEAK/ALPHA Error *****
Review Spectrum on Screen

End of Report

Alpha Analysis Report
(Version: 7-Feb-98)

Sample Identity: JMW7X1AA

Detector: ALP171 5

Report Date: 24-Jan-07 05:54 AM

Acquire Date: 23-JAN-2007 14:19:50.73

Tracer Nuclide: TH-229

Sample Live Time: 499 minutes

Bkgrnd Live Time: 999 minutes

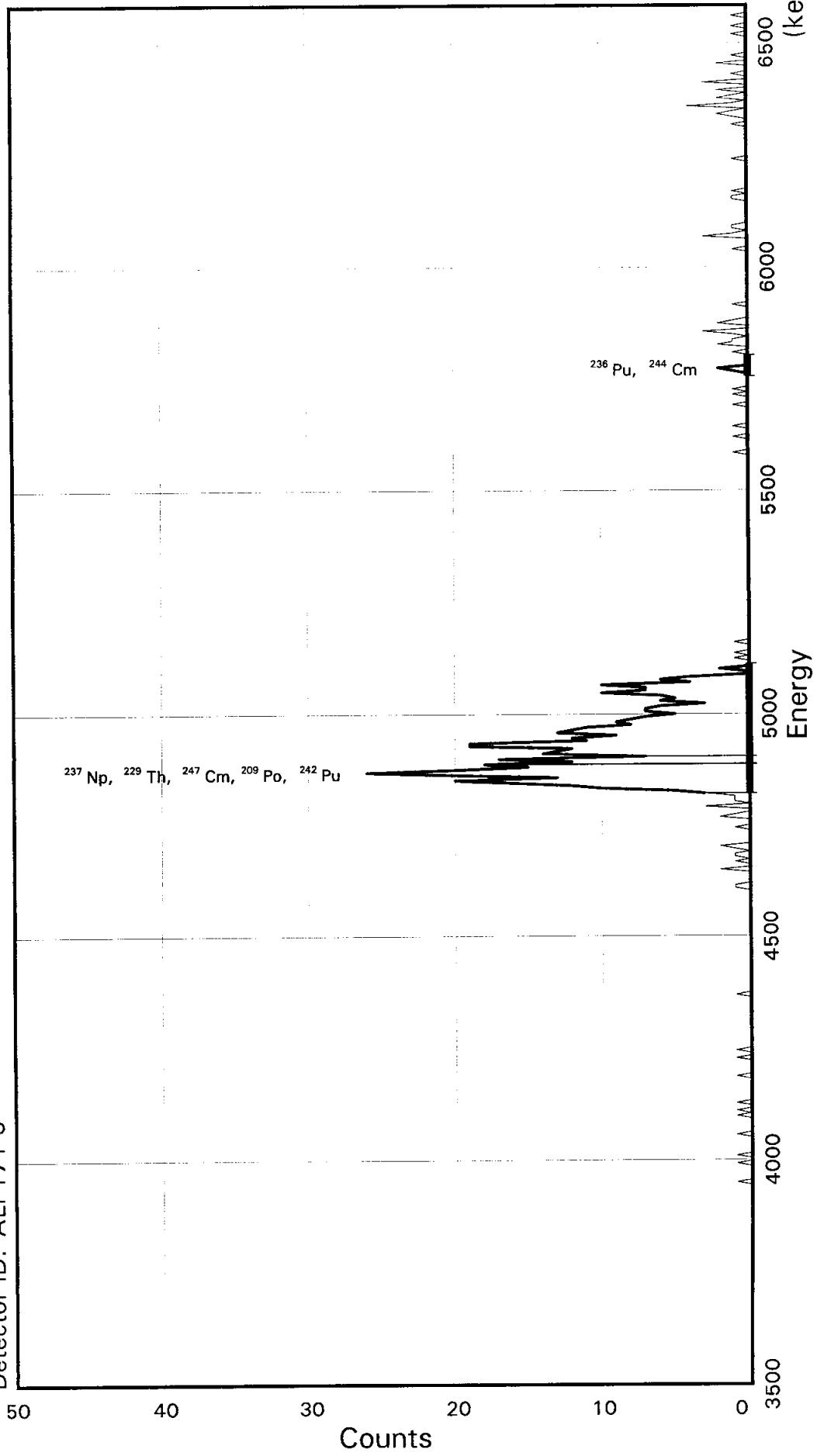
Nuclide	Smpl Count	Bkg Count	Count	Centrd Rate C/Min	Region Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	0	0	0.000	5423.2	118.1	301	321	
TH-229	490	4	0.977	4845.3	330.4	210	266	
TH-230	10	1	0.019	4687.7	117.9	176	196	
TH-232	3	0	0.006	4013.0	117.7	62	82	

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH BRC

Sample ID: JMW7X1AA
Detector ID: ALP1715

Batch ID: 7016314



Acquisition Start: 23-JAN-2007 14:19:50.73
Preset Live Time: 0 08:20:00.00
Elapsed Live Time: 0 08:19:28.00

Energy Coefficients:
Offset: 3.56302E + 03
Slope: 5.87800E + 00
Quadrature: 4.72323E - 05

SAMPLE IDENTIITY: JMW7X1AA

TITLE : TH BRC

DETECTOR : ALP171 5
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]JMW7X1AA_230171419E.CN
F;1
ACQUIRE DATE of BACKGROUND: 14-JAN-2007 11:22:50

REPORT DATE : 23-Jan-07 SAMPLE DATE: 19-DEC-2006 12:00:00
ACQUIRE DATE: 23-JAN-2007 14:19:50 CALIB DATE : 14-JAN-2007 01:53:33

PRESET LIVE TIME: 0 08:20:00 ELAPSED LIVE TIME: 0 08:19:28

OFFSET : 3563.02 keV CONSTANT FWHM : 7.83333 Channels
SLOPE : 5.87800 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 4.723230E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: JMW7X1AA

Flags Key

Detector: ALP171 5	
Report Date: 23-Jan-07 10:40 PM	P: Peak Identified
Acquire Date: 23-JAN-2007 14:19:50.73	I: Peak Intersect
Tracer Nuclide: TH-229	S: Single Non-peak Intersect
High Counts Limit: 36	M: Multiple Non-peak Intersect
Sample Live Time: 499 minutes	H: High Non-peak Sample Count
Bkgrnd Live Time: 999 minutes	A: Altered via ALP-RGN-EDIT

Nuclide Name	Smpl Count	Bkg Count	Intrsct Count	Count	Centrd Rate C/Min	Region Energy keV	Width keV	Left		Rght		Flags
								Chnl	Left	Chnl	Rght	
PO-208	-9999	-9999	0	-10.010	5136.9	82.6	260	274	0.00	0.00	M	
PO-209	368	1	0	0.736	4905.2	82.6	214	228	0.00	0.00	P	
PO-210	-9999	-9999	0	-10.010	5326.3	82.7	292	306	0.00	0.00	M	
AC-227	7	3	1	0.010	6060.0	82.9	416	430	0.00	0.00	S	
TH-227	7	3	1	0.010	6060.0	82.9	416	430	0.00	0.00	S	
TH-228	-9999	-9999	0	-10.010	5445.2	82.7	312	326	0.00	0.00	M	
TH-229	368	1	0	0.736	4867.3	82.6	214	228	0.00	0.00	P	
TH-230	7	1	0	0.013	4709.7	82.5	187	201	0.00	0.00		
TH-232	3	0	0	0.006	4035.0	82.4	73	87	0.00	0.00		
U-232	-9999	-9999	0	-10.010	5342.1	82.7	294	308	0.00	0.00	M	
U-234	-9999	-9999	0	-10.010	4796.6	82.6	202	216	0.00	0.00	I	
U-235	0	1	0	-0.001	4419.8	82.5	138	152	0.00	0.00		
PU-236	4	6	0	0.002	5789.6	47.3	372	380	0.00	0.00	P	
NP-237	368	1	0	0.736	4810.0	82.6	214	228	0.00	0.00	P	
PU-238	-9999	-9999	0	-10.010	5521.0	82.7	325	339	0.00	0.00	M	
U-238	3	0	0	0.006	4220.0	82.4	104	118	0.00	0.00		
PU-239	-9999	-9999	0	-10.010	5178.6	82.7	267	281	0.00	0.00	M	
AM-241	-9999	-9999	0	-10.010	5507.6	82.7	322	336	0.00	0.00	M	
AM-242M	-9999	-9999	0	-10.010	5228.8	82.7	275	289	0.00	0.00	M	
CM-242	-9999	-9999	0	-10.010	6134.7	76.9	429	442	0.00	0.00	M	
PU-242	368	1	0	0.736	4922.5	82.6	214	228	0.00	0.00	P	
AM-243	-9999	-9999	0	-10.010	5297.3	82.7	287	301	0.00	0.00	M	
CM-244	4	6	0	0.002	5826.8	47.3	372	380	0.00	0.00	P	
CM-246	-9999	-9999	0	-10.010	5408.5	82.7	306	320	0.00	0.00	M	
CM-247	368	1	0	0.736	4892.4	82.6	214	228	0.00	0.00	P	
CM-248	-9999	-9999	0	-10.010	5100.6	82.6	254	268	0.00	0.00	M	

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29 Jun 92)

Sample Identity: JMW7X1AA

Flags Key

Detector: ALP171 5

Report Date: 23 Jan 07 10:40 PM

Intersect Region: @

Acquire Date: 23 JAN 2007 14:19:50.73

Non-Intersect Region: +,

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
	1	0	51	0	101	0+	151	1+	201	6	251	0@	301	0	351	0	401	0	451	1	501					
	2	0	52	0	102	0+	152	0-	202	10	252	0@	302	0	352	0	402	0	452	0	502					
0	3	0	53	0	103	0	153	0-	203	7	253	0@	303	1	353	0	403	0	453	0	503					
0	4	0	54	0+	104	0	154	0-	204	7+	254	0@	304	0	354	0	404	1	454	1	504					
0	5	0	55	0+	105	0	155	2-	205	10+	255	0@	305	0	355	0	405	0	455	0	505					
0	6	0	56	1+	106	0	156	1-	206	4+	256	0-	306	0	356	0	406	0	456	0	506					
0	7	0	57	0+	107	0	157	0-	207	6+	257	0@	307	0	357	0	407	0	457	0	507					
0	8	0	58	0+	108	0	158	0-	208	4+	258	0@	308	0	358	0	408	0	458	1	508					
0	9	0	59	0+	109	0	159	3-	209	0+	259	0-	309	0	359	0	409	0	459	0	509					
0	10	0	60	0+	110	0	160	0-	210	0@	260	0-	310	0	360	0	410	0	460	0	510					
0	11	0	61	0+	111	0	161	1-	211	2@	261	0-	311	1	361	0	411	0	461	0	511					
0	12	0	62	0+	112	0	162	1-	212	0@	262	0@	312	0	362	0	412	0	462	0	512					
0	13	0	63	1+	113	0	163	1-	213	0@	263	0@	313	0	363	0	413	0	463							
0	14	0	64	0+	114	0	164	3-	214	0@	264	0@	314	0	364	0	414	0	464							
0	15	0	65	0+	115	0	165	5@	215	1@	265	0@	315	1	365	0	415	0	465							
0	16	1	66	1+	116	0	166	10@	216	0@	266	0@	316	0	366	0@	416	0	466							
0	17	0	67	0+	117	0	167	12@	217	1@	267	0@	317	1	367	0@	417	1	467							
0	18	0	68	0+	118	0	168	16@	218	0@	268	0@	318	0	368	0@	418	0	468							
0	19	0	69	0	119	0	169	20@	219	0@	269	0@	319	0	369	0@	419	0	469							
0	20	0	70	0	120	0	170	13@	220	0@	270	0@	320	0	370	1@	420	1	470							
0	21	0	71	0	121	0	171	20@	221	1@	271	0+	321	0	371	0@	421	2	471							
0	22	0	72	0	122	0	172	26@	222	0@	272	0@	322	0@	372	0@	422	1	472							
0	23	1+	73	0	123	0	173	20@	223	0@	273	0@	323	0@	373	0@	423	0	473							
0	24	0+	74	0	124	0	174	15@	224	0@	274	0@	324	1@	374	0@	424	4	474							
0	25	0+	75	0	125	0	175	18@	225	0@	275	0@	325	2@	375	3@	425	1	475							
0	26	1+	76	0	126	0	176	12@	226	0@	276	0@	326	0@	376	1@	426	0	476							
0	27	0+	77	0	127	0	177	17@	227	0@	277	0@	327	0@	377	0@	427	2	477							
0	28	0+	78	0	128	1	178	7	228	0@	278	0@	328	0@	378	1@	428	1	478							
0	29	0+	79	0	129	1	179	14	229	0@	279	0@	329	0@	379	1-	429	0	479							
0	30	0+	80	0	130	0	180	13	230	0@	280	0@	330	0	380	0@	430	2	480							
0	31	0+	81	0	131	0	181	12	231	0@	281	0@	331	1	381	0-	431	0	481							
0	32	0+	82	0	132	0	182	19	232	0-	282	0@	332	0	382	0-	432	0	482							
0	33	0+	83	0	133	0	183	19	233	0-	283	0@	333	0	383	0-	433	3	483							
0	34	1+	84	0	134	0	184	11	234	0-	284	0@	334	2	384	0-	434	0	484							
0	35	0+	85	0	135	2	185	12	235	0-	285	0@	335	1	385	0-	435	0	485							
0	36	0+	86	0	136	0	186	9	236	0-	286	0@	336	1	386	0-	436	1	486							
0	37	0+	87	1	137	0+	187	13	237	0@	287	0+	337	0	387	0-	437	0	487							
0	38	0	88	0+	138	1+	188	12	238	0@	288	0+	338	1	388	0-	438	0	488							
0	39	0	89	0+	139	0+	189	11	239	0@	289	0+	339	3	389	1-	439	0	489							
0	40	0	90	0+	140	1+	190	8	240	0-	290	0	340	0	390	1-	440	2	490							
0	41	1	91	0+	141	1+	191	9	241	0-	291	0	341	0	391	0-	441	0	491							
0	42	0	92	0+	142	0+	192	8	242	0@	292	0	342	2	392	1-	442	0	492							
0	43	1	93	0+	143	1+	193	7	243	0@	293	1	343	1	393	0	443	1	493							
0	44	0	94	0+	144	2+	194	5	244	0@	294	0	344	0	394	0	444	0	494							
0	45	0	95	0+	145	0+	195	7	245	0@	295	0	345	0	395	0	445	0	495							
0	46	1	96	0+	146	0+	196	7	246	0@	296	0	346	0	396	0	446	0	496							
0	47	0	97	0+	147	0+	197	6	247	0@	297	0	347	0	397	0	447	0	497							
0	48	0	98	0+	148	0+	198	3	248	0@	298	0	348	0	398	0	448	0	498							
0	49	0	99	0+	149	0+	199	6	249	0@	299	1	349	1	399	0	449	0	499							
0	50	0	100	0+	150	0+	200	5	250	0@	300	0	350	0	400	0	450	0	500							

VMS Peak Search Report V1.9 Generated 23-JAN-2007 22:40:47

Configuration : \$DISK1:[ALP171.SAMPLE]JMW7X1AA_230171419E.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRC
Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
Sample ID : JMW7X1AA Sample quantity : 0.00000E+00 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
Start energy : 3580.65 keV End energy : 6584.94 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4867.26	368	0	58.78	221.49	214	14	1.23E-02	5.2	
2	0	4971.28	117	0	182.22	239.12	225	38	3.90E-03	9.2	
3	0	5770.95	4	0	23.51	374.50	372	8	1.33E-04	50.0	

Configuration : \$DISK1:[ALP171.SAMPLE]JMW7X1AA_230171419E.CNF;1
 Analyses by : ALPHA V1.8, PEAKEFF V2.2, NID V3.3
 Sample title : TH BRC
 Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
 Sample ID : JMW7X1AA Sample quantity : 0.00000E+00 SAMPLE
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 70.00

Summary of Nuclide Activity

Total number of lines in spectrum	3
Number of unidentified lines	1
Number of lines tentatively identified by NID	2 66.67%

Nuclide Type : NP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma
					0-Sigma Error	%Error Flags
PO-209	102.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
			-----	-----		
			Total Activity :	0.000E+00	0.000E+00	

Nuclide Type : AP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma
					0-Sigma Error	%Error Flags
TH-229	7340.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
PU-236	2.86Y	1.02	0.000E+00	0.000E+00	0.000E+00	0.00
NP-237	2.14E+06Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
PU-242	3.73E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
CM-244	18.10Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
CM-247	1.56E+07Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.00
			-----	-----		
			Total Activity :	0.000E+00	0.000E+00	

Grand Total Activity : 0.000E+00 0.000E+00

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]JMW7X1AA_230171419E.CNF;1

Peak Energy	Left Chan	Rght Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4867.26	214	228	368	214	8.03		
4971.27	225	263	117	326	-19.32	54	-0.05
5770.95	372	380	4	3	0.50		

***** WARNING: Possible PEAK/ALPHA Error *****
Review Spectrum on Screen

End of Report

Alpha Analysis Report
(Version: 7-Feb-98)

Sample Identity: JMW7X1AC

Detector: ALP171 6
Report Date: 24-Jan-07 05:55 AM
Acquire Date: 23-JAN-2007 14:19:50.73
Tracer Nuclide: TH-229
Sample Live Time: 499 minutes
Bkgrnd Live Time: 999 minutes

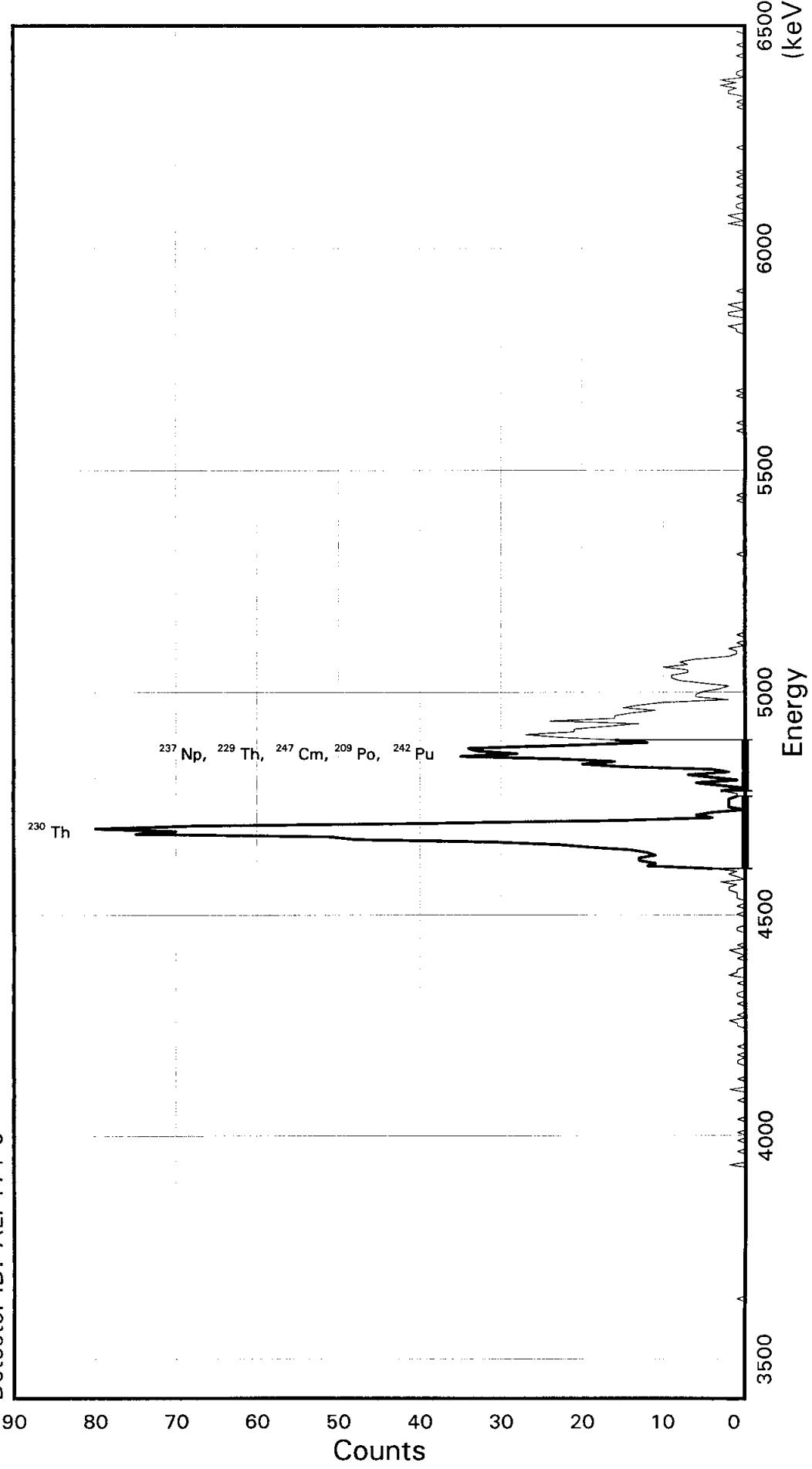
Nuclide	Smpl Count	Bkg Count	Count	Centrd Rate C/Min	Region Energy keV	Width keV	Left Chnl	Rght Chnl
TH-228	2	4	0.000	5423.2	121.1	322	342	
TH-229	629	3	1.256	4845.3	332.3	231	286	
TH-230	633	1	1.266	4687.7	175.0	195	224	
TH-232	6	0	0.012	4013.0	120.3	88	108	

End of Alpha Region Report
(Produced by ANAL Report)

STL Richland WA.
TH BRC

Sample ID: JMW7X1AC
Detector ID: ALP171 6

Batch ID: 7016314



Acquisition Start: 23-JAN-2007 14:19:50.73
Preset Live Time: 0 08:20:00.00
Elapsed Live Time: 0 08:19:28.00

Energy Coefficients:
Offset: 3.39397E + 03
Slope: 6.00190E + 00
Quadrature: 7.63598E-05

SAMPLE IDENTIITY: JMW7X1AC

TITLE : TH BRC

DETECTOR : ALP171 6
CONFIGURATION NAME : \$DISK1:[ALP171.SAMPLE]JMW7X1AC_230171419F.CN
F;1
ACQUIRE DATE of BACKGROUND: 14-JAN-2007 11:22:50

REPORT DATE : 23-Jan-07 SAMPLE DATE: 19-DEC-2006 12:00:00
ACQUIRE DATE: 23-JAN-2007 14:19:50 CALIB DATE : 14-JAN-2007 01:53:45

PRESET LIVE TIME: 0 08:20:00 ELAPSED LIVE TIME: 0 08:19:28

OFFSET : 3393.97 keV CONSTANT FWHM : 7.66667 Channels
SLOPE : 6.00190 keV/C SENSITIVITY : 3.00000 Std Dev's
QUAD COEFF : 7.635980E-05 keV/C^2 SUM SENSITIVITY: 1.00000 %

Alpha Regions Report
(Version: 8-Oct-91)

Sample Identity: JMW7X1AC

Flags Key

Detector: ALP171 6	
Report Date: 23-Jan-07 10:40 PM	P: Peak Identified
Acquire Date: 23-JAN-2007 14:19:50.73	I: Peak Intersect
Tracer Nuclide: TH-229	S: Single Non-peak Intersect
High Counts Limit: 36	M: Multiple Non-peak Intersect
Sample Live Time: 499 minutes	H: High Non-peak Sample Count
Bkgrnd Live Time: 999 minutes	A: Altered via ALP-RGN-EDIT

Nuclide	Smpl	Bkg	Intrsct	Count	Centrd	Region	Left	Rght	Wdth	Wdth	Flags
Name	Count	Count	Count	Rate	Energy	Width	Left	Rght	Mult	Mult	
				C/Min	keV	keV	Chnl	Chnl			
PO-208	-9999	-9999	0	-10.010	5133.0	114.9	275	294	0.00	0.00	M
PO-209	288	1	0	0.576	4901.3	114.7	230	249	0.00	0.00	P
PO-210	-9999	-9999	0	-10.010	5322.5	115.0	306	325	0.00	0.00	M
AC-227	3	2	5	0.003	6056.2	115.3	427	446	0.00	0.00	S
TH-227	3	2	5	0.003	6056.2	115.3	427	446	0.00	0.00	S
TH-228	-9999	-9999	0	-10.010	5441.3	115.0	326	345	0.00	0.00	M
TH-229	288	1	0	0.576	4863.4	114.7	230	249	0.00	0.00	P
TH-230	631	0	0	1.263	4705.8	162.9	201	228	0.00	0.00	P
TH-232	4	0	0	0.008	4031.1	114.3	92	111	0.00	0.00	
U-232	-9999	-9999	0	-10.010	5338.3	115.0	309	328	0.00	0.00	M
U-234	-9999	-9999	0	-10.010	4792.7	114.7	218	237	0.00	0.00	I
U-235	10	0	0	0.020	4415.9	114.5	156	175	0.00	0.00	
PU-236	1	10	1	-0.009	5785.8	115.2	382	401	0.00	0.00	S
NP-237	288	1	0	0.576	4806.1	114.7	230	249	0.00	0.00	P
PU-238	-9999	-9999	0	-10.010	5517.2	115.0	338	357	0.00	0.00	M
U-238	5	0	0	0.010	4216.1	114.4	123	142	0.00	0.00	
PU-239	-9999	-9999	0	-10.010	5174.7	114.9	282	301	0.00	0.00	M
AM-241	-9999	-9999	0	-10.010	5503.7	115.0	336	355	0.00	0.00	M
AM-242M	-9999	-9999	0	-10.010	5224.9	114.9	290	309	0.00	0.00	M
CM-242	-9999	-9999	0	-10.010	6130.9	115.3	439	458	0.00	0.00	M
PU-242	288	1	0	0.576	4918.6	114.7	230	249	0.00	0.00	P
AM-243	-9999	-9999	0	-10.010	5293.4	114.9	301	320	0.00	0.00	M
CM-244	8	26	1	-0.011	5823.0	115.2	389	408	0.00	0.00	S
CM-246	-9999	-9999	0	-10.010	5404.6	115.0	320	339	0.00	0.00	M
CM-247	288	1	0	0.576	4888.5	114.7	230	249	0.00	0.00	P
CM-248	-9999	-9999	0	-10.010	5096.7	114.8	269	288	0.00	0.00	M

End of Alpha Region Report
(Produced by Alp_rgn_cnts)

Alpha Spectrum Listing
(Version: 29-Jun-92)

Sample Identity: JMW7X1AC

Flags Key

Detector: ALP171 6

Report Date: 23-Jan-07 10:40 PM

Intersect Region: @

Acquire Date: 23-JAN-2007 14:19:50.73

Non-Intersect Region: +, -

Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn	Cnt	F	Chn
1	0	51	0+	101	0	151	4+	201	27	251	0-	301	0@	351	1@	401	1-	451	0	501			
2	0	52	1+	102	0	152	12+	202	21	252	0@	302	0@	352	1-	402	0-	452	0	502			
0	3	0	53	0+	103	1	153	11+	203	21	253	0@	303	0@	353	2-	403	0-	453	1	503		
0	4	0	54	0+	104	1	154	13+	204	17	254	0@	304	0@	354	0-	404	0	454	0	504		
0	5	0	55	0+	105	0	155	13+	205	13	255	0@	305	0@	355	0-	405	1-	455	0	505		
0	6	0	56	0+	106	0+	156	11+	206	24	256	0@	306	0+	356	0-	406	0-	456	0	506		
0	7	0	57	1+	107	0+	157	12+	207	16	257	0@	307	0+	357	2-	407	0-	457	1	507		
0	8	0	58	0+	108	1+	158	14+	208	16	258	0@	308	0	358	2-	408	1-	458	0	508		
0	9	0	59	0+	109	0+	159	19+	209	14	259	0@	309	0	359	0	409	0	459	0	509		
0	10	0	60	0+	110	0+	160	23+	210	11	260	0@	310	0	360	1	410	1	460	0	510		
0	11	0	61	0+	111	2+	161	31+	211	15	261	0@	311	0	361	2	411	0	461	0	511		
0	12	0	62	0	112	1+	162	48+	212	13	262	0@	312	0	362	0	412	0	462	1	512		
0	13	0	63	0	113	1+	163	51+	213	10	263	0@	313	0	363	0	413	0	463				
0	14	0	64	1	114	0+	164	75+	214	2	264	0@	314	1	364	0	414	0	464				
0	15	0	65	0	115	0+	165	70+	215	6	265	0@	315	0	365	0	415	0	465				
0	16	0	66	0	116	0+	166	80+	216	6	266	0@	316	0	366	1	416	0	466				
0	17	0	67	0	117	1+	167	68+	217	5	267	0@	317	1	367	0	417	0	467				
0	18	0	68	2	118	0+	168	39@	218	3	268	1@	318	0	368	0	418	0	468				
0	19	0	69	0	119	1+	169	15@	219	2+	269	0@	319	0	369	0	419	1	469				
0	20	0	70	0	120	2+	170	4@	220	5+	270	0-	320	0	370	0	420	0	470				
0	21	0	71	0	121	0+	171	6@	221	8+	271	0@	321	0	371	0	421	0	471				
0	22	0	72	1	122	1+	172	4@	222	9+	272	0@	322	0	372	0	422	0	472				
0	23	0	73	0+	123	0+	173	0@	223	9+	273	0@	323	0	373	0	423	0	473				
0	24	0	74	0+	124	0+	174	2@	224	7+	274	0@	324	0	374	0	424	0	474				
0	25	0	75	0+	125	0+	175	2@	225	7@	275	0@	325	0	375	0	425	0	475				
0	26	0	76	0+	126	0	176	2@	226	10@	276	0@	326	0	376	0	426	0	476				
0	27	0	77	0+	127	0	177	2@	227	7@	277	0@	327	1	377	0@	427	0	477				
0	28	0	78	1+	128	1	178	1-	228	8@	278	0@	328	0	378	0@	428	0	478				
0	29	0	79	1+	129	1	179	1-	229	6@	279	0@	329	1	379	0@	429	0	479				
0	30	0	80	0+	130	0	180	3-	230	2@	280	0@	330	0	380	0@	430	0	480				
0	31	0	81	1+	131	0	181	0@	231	1@	281	0@	331	0	381	0@	431	0	481				
0	32	0	82	0+	132	0	182	3@	232	1@	282	0@	332	0+	382	0@	432	0	482				
0	33	0	83	0+	133	0	183	6@	233	2@	283	0@	333	0+	383	0@	433	0	483				
0	34	0	84	1+	134	1	184	1@	234	0@	284	0@	334	0+	384	0@	434	1	484				
0	35	0	85	0+	135	0	185	4@	235	1@	285	0@	335	0+	385	0@	435	0	485				
0	36	0	86	0+	136	0	186	7@	236	0@	286	0@	336	0+	386	0@	436	1	486				
0	37	0	87	0+	137	1	187	2@	237	0@	287	0@	337	0+	387	0@	437	0	487				
0	38	0	88	0+	138	0	188	4@	238	1@	288	1@	338	0+	388	0@	438	0	488				
0	39	0	89	0+	139	0	189	15@	239	0@	289	0@	339	0@	389	0-	439	2	489				
1	40	2	90	0+	140	1	190	20@	240	0-	290	1@	340	0@	390	0@	440	2	490				
0	41	0	91	0+	141	1	191	16@	241	0@	291	0@	341	0@	391	2@	441	1	491				
0	42	0+	92	1+	142	1	192	23@	242	0@	292	0@	342	0@	392	0@	442	3	492				
0	43	0+	93	1	143	2	193	35@	243	0@	293	0@	343	0@	393	1@	443	1	493				
0	44	0+	94	2	144	2	194	23@	244	0@	294	0@	344	0@	394	2@	444	3	494				
0	45	1+	95	0	145	1	195	33@	245	0@	295	0@	345	0@	395	0@	445	0	495				
0	46	0+	96	1	146	3	196	34@	246	0@	296	0@	346	0@	396	0@	446	1	496				
0	47	0+	97	0	147	0	197	22@	247	0@	297	0@	347	0@	397	1-	447	1	497				
0	48	0+	98	0	148	1	198	12@	248	0@	298	0@	348	0@	398	1-	448	0	498				
0	49	1+	99	0	149	2	199	16	249	0@	299	0@	349	0@	399	0-	449	0	499				
0	50	0+	100	1	150	1	200	23	250	0@	300	0@	350	0@	400	0-	450	0	500				

VMS Peak Search Report V1.9 Generated 23-JAN-2007 22:40:52

Configuration : \$DISK1:[ALP171.SAMPLE]JMW7X1AC_230171419F.CNF;1
Analyses by : ALPHA V1.8
Sample title : TH BRC
Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
Sample ID : JMW7X1AC Sample quantity : 0.00000E+00 SAMPLE
Sample type : disk Sample geometry :
Detector name : ALP171 1 Detector geometry:
Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
Start energy : 3411.97 keV End energy : 6486.96 keV
Sensitivity : 3.00 Sum Sensitivity : 1.00

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	4687.96	631	0	42.01	215.01	201	27	2.11E-02	4.0	
2	0	4863.45	288	0	42.01	244.08	230	19	9.61E-03	5.9	

Configuration : \$DISK1:[ALP171.SAMPLE]JMW7X1AC_230171419F.CNF;1
 Analyses by : ALPHA V1.8, PEAKEFF V2.2, NID V3.3
 Sample title : TH BRC
 Sample date : 19-DEC-2006 12:00:00 Acquisition date : 23-JAN-2007 14:19:50
 Sample ID : JMW7X1AC Sample quantity : 0.00000E+00 SAMPLE
 Sample type : disk Sample geometry :
 Detector name : ALP171 1 Detector geometry:
 Elapsed live time: 0 08:19:28.00 Elapsed real time: 0 08:19:28.00 0.0%
 Energy tolerance : 80.00 keV Half life ratio : 1.00
 Errors propagated: No Systematic Error : 0.00 %
 Efficiency type : Spline Efficiencies at : Peak Energy
 Abundance limit : 70.00

Summary of Nuclide Activity

Total number of lines in spectrum	2
Number of unidentified lines	0
Number of lines tentatively identified by NID	2 100.00%

Nuclide Type : NP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma	%Error	Flags
PO-209	102.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
TH-230	7.54E+04Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
<hr/>								
Total Activity : 0.000E+00				0.000E+00				

Nuclide Type : AP

Nuclide	Hlife	Decay	Uncorrected PCI/SAMPLE	Decay Corr PCI/SAMPLE	Decay Corr 0-Sigma	0-Sigma	%Error	Flags
TH-229	7340.00Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
NP-237	2.14E+06Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
PU-242	3.73E+05Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
CM-247	1.56E+07Y	1.00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.00	
<hr/>								
Total Activity : 0.000E+00				0.000E+00				

Grand Total Activity : 0.000E+00 0.000E+00

Flags: "K" = Keyline not found
 "E" = Manually edited

"M" = Manually accepted
 "A" = Nuclide specific abn. limit

ITRD PEAK TEST REPORT (Version 16-May-94)

Configuration: \$DISK1:[ALP171.SAMPLE]JMW7X1AC_230171419F.CNF;1

Peak Energy	Left Chan	Right Chan	Peak Area	Total Counts	Diff/StDev	Overlap Counts	Multiplet Diff/StDev
4687.96	201	228	631	632	-0.04		
4863.44	230	249	288	284	0.24		

End of Report

ALPHA

SAMPLE AND QC DATA

Lot No., Due Date: J7A150137; 02/09/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7016316; RALPHA-A Alpha by GPC-Am

SDG, Matrix: 33484; FILTER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?

Yes No N/A

**2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?

Yes No N/A



2.2 Are the QC appropriate for the analysis included in the batch?

Yes No N/A



2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?

Yes No N/A



2.4 Does the Worksheets include a Tracer Vial label for each sample?

Yes No N/A

**3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits?

Yes No N/A



3.2 Is the LCS result, yield, and MDA within contract limits?

Yes No N/A



3.3 Are the MS/MSD results, yields, and MDA within contract limits?

Yes No N/A



3.4 Are the duplicate result, yields, and MDAs within contract limits?

Yes No N/A



3.5 Are the sample yields and MDAs within contract limits?

Yes No N/A

**4.0 Raw Data**

4.1 Were results calculated in the correct units?

Yes No N/A



4.2 Were analysis volumes entered correctly?

Yes No N/A



4.3 Were Yields entered correctly?

Yes No N/A



4.4 Were spectra reviewed/meet contractual requirements?

Yes No N/A



4.5 Were raw counts reviewed for anomalies?

Yes No N/A

**5.0 Other**

5.1 Are all nonconformances included and noted?

Yes No N/A



5.2 Are all required forms filled out?

Yes No N/A



5.3 Was the correct methodology used?

Yes No N/A



5.4 Was transcription checked?

Yes No N/A



5.5 Were all calculations checked at a minimum frequency?

Yes No N/A



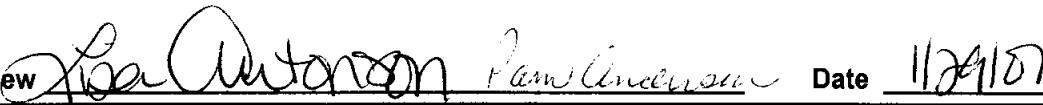
5.6 Are worksheet entries complete and correct?

Yes No N/A



6.0 Comments on any No response:

First Level Review


Lisa Antonson Pam Anderson Date 1/29/07

**SEVERN
TRENT**

STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

OC Batch Number:

7014316

Review Item	Yes (✓)	No (✗)	N/A (✗)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	/		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	/		
3. Are the correct isotopes reported?	/		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result \leq the Contract Detection Limit?			
2. Does the blank result meet the Contract criteria?	/		
3. Is the blank result < the Contract Detection Limit?	/		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			/
5. Is the LCS recovery with contract acceptance criteria?	/		
7. Is the LCS Minimum Detectable Activity \leq the Contract Detection Limit?	/		
8. Do the MS/MSD results and yields meet acceptance criteria?			/
9. Do the duplicate sample results and yields meet acceptance criteria?			/
C. Other			
1. Are all Nonconformances included and noted?			/
2. Are all required forms filled out?			
3. Was the correct methodology used?	/		
4. Was transcription checked?	/		
5. Were all calculations checked at a minimum frequency?	/		
6. Were units checked?			

Comments on any "No" response:

Second Level Review:

Sherryl A. Olson

Date: 1-30-07

5/18/2007 11:38:47 AM		Sample Preparation/Analysis		Balance Id:1120373922						
E 536403, Brown and Caldwell Caldwell	Brown &	BA Gross Alpha PrpRC5016/5014	S7 Gross Alpha by GPC using Am-241 curve	Pipet #:						
AnalyDueDate: 02/08/2007		01 STANDARD TEST SET		Sep1 DT/Tm Tech:						
Batch: 7016316 FILTER		pm, Quote: SA , 63174	Prep Tech: WoodT / A64	Sep2 DT/Tm Tech:						
Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Pot or Geometry					
Sample Date/Time	Amt/Unit	Amt/Unit	Prep Date	Detector Id	Count On Off (24hr) Circle					
Work Order, Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Pot or Geometry	Count On Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JMVNQ-1-AE J7A150137-1-SAMP 12/19/2006 09:42	0.833sa	12.52g,in		1.5	0.6	190	10A	2110	1/25/07 0400	
2 JMVNW-1-AE J7A150137-2-SAMP 12/19/2006 10:03	0.833sa	12.54g,in	AmfRec: FILTER	#Containers: 1			Scr:	Alpha:		Beta:
3 JMVN1-1-AE J7A150137-3-SAMP 12/19/2006 10:23	0.833sa	12.57g,in		0.4			10B			
4 JMVN4-1-AE J7A150137-4-SAMP 12/19/2006 10:29	0.833sa	12.53g,in	AmfRec: FILTER	#Containers: 1	0.7	10C	Scr:	Alpha:		Beta:
5 JMWT2-1-AA-B J7A160000-316-BLK 12/19/2006 09:42		12.57g,in	AmfRec: FILTER	#Containers: 1	0.7	10D	Scr:	Alpha:		Beta:
6 JMWT2-1-AC-C J7A160000-316-LCS 12/19/2006 09:42		12.64g,in	ASC0425 12/18/06.pd 02/09/06.r		0.2	10E	Scr:	0 Alpha:		Beta:
			AmfRec:	#Containers: 1						
							Scr:	Alpha:		Beta:

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
 Richland Wa. pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 6
 Prep_SamplePrep v4.8.26

STL RICHLAND

Sample Preparation/Analysis

BA Gross Alpha PrpRC5016/5014

S7 Gross Alpha by GPC using Am-241 curve

01 STANDARD TEST SET

Balance Id:1120373922

Pipet #:

AnalyDueDate: 02/08/2007

SEQ Batch, Test: None

Batch: 7016316**pCi/samp!**

Work Order Lot, Sample Date/Time	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On (24hr) Circle	CR Analyst, Init/Date	Comments:
-------------------------------------	-------------------	-----------------------------	------------------------	--------------	--------------------	-------------------	----------------	---------------------------	--------------------------	-----------

Comments:

190 collection added to ec. Samp. 1125 lot ARA

All Clients for Batch:
536403, Brown and Caldwell

Brown & Caldwell , SA , 63174

JMVQ1AE-SAMP Constituent List:

ALPHA RDL:20 pCi/sam LCL: UCL: RPD:

ALPHA RDL:20 pCi/sam LCL: UCL: RPD:

JMW721AC-LCS:

JMVQ1AE-SAMP Calc Info:

Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci.Not.: Y ODRS: B

JMW721AA-BLK: Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci.Not.: Y ODRS: B

JMW721AC-LCS: Uncert Level (#s) : 2 Decay to Sadt: Y Blk Subt.: N Sci.Not.: Y ODRS: B

Approved By _____

Date: _____

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

Page 2

WO Cnt: 6

Prep_SamplePrep v4.8.26

1/29/2007 3:55:02 PM

ICOC Fraction Transfer/Status Report

ByDate: 1/29/2006, 2/3/2007, Batch: '7016316', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
7016316					
AC		CalcC	WoodT	1/18/2007 11:07:15	
SC		wagarr	IsBatched	1/16/2007 3:40:15 PM	ICOC_RADCALC v4.8.26
SC		WoodT	InPrep	1/18/2007 11:07:15 AM	RICH-RC-5016 Revision 5
SC		WoodT	Prep1C	1/18/2007 11:39:15 AM	RICH-RC-5016 REVISION 5
SC		AshworthA	InPrep2	1/25/2007 9:16:14 AM	RICH-RC-5014 REVISION 6
SC		AshworthA	Prep2C	1/25/2007 2:41:27 PM	RICH-RC-5014 REVISION 6
SC		BlackCL	InCnt1	1/25/2007 2:57:52 PM	RICH-RD-0003 REVISION 4
SC		StringerR	CalcC	1/26/2007 9:28:58 AM	RICH-RD-0003 REVISION 4
AC		WoodT		1/18/2007 11:39:15	
AC		AshworthA		1/25/2007 9:16:14	
AC		AshworthA		1/25/2007 2:41:27 PM	
AC		BlackCL		1/25/2007 2:57:52 PM	
AC		StringerR		1/26/2007 9:28:58	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Page 1

Grp Rec Cnt: 6

ICOCFractions v4.8.26

1/29/2007 3:55:01 PM

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	Lot Sample Analysis Date	Client Id Result	Matrix	Received Date	Sample Date	Expected Yield	Volumes
				Cnt Uncert	Tot Uncert	Maa	Units	
33484	9JMVN110	J7A1501373	P-0584	FILTER	1/12/2007 10:00:00	12/19/2006 10:23:00 AM		
ALPHA	BAS7	0	1/25/2007 7:54:30 PM 3.1461E+00	1.514E+00	1.557E+00	5.478E+00	PCI/SA	1.0 1.0E+0 2.089E-2
TH-228	9NS1	0	1/23/2007 6:29:35 PM 2.2755E-02	7.547E-02	7.549E-02	3.825E-01	PCI/SA	0.963 1.0E+0 8.4E-2
TH-230	9NS1	0	1/23/2007 6:29:35 PM 1.7576E-01	9.059E-02	9.188E-02	2.636E-01	PCI/SA	0.963 1.0E+0 8.4E-2
TH-232	9NS1	0	1/23/2007 6:29:35 PM 0.0E+00	0.0E+00	4.913E-02	2.636E-01	PCI/SA	0.963 1.0E+0 8.4E-2
33484	9JMVN410	J7A1501374	P-0585	FILTER	1/12/2007 10:00:00	12/19/2006 10:29:00 AM		
ALPHA	BAS7	0	1/25/2007 7:54:30 PM 1.7894E+00	1.401E+00	1.417E+00	5.672E+00	PCI/SA	1.0 1.0E+0 2.074E-2
TH-228	9NS1	0	1/23/2007 6:29:35 PM 2.3752E-02	5.311E-02	5.315E-02	2.849E-01	PCI/SA	0.956 1.0E+0 8.29E-2
TH-230	9NS1	0	1/23/2007 6:29:35 PM 4.3574E-01	1.468E-01	1.517E-01	2.751E-01	PCI/SA	0.956 1.0E+0 8.29E-2
TH-232	9NS1	0	1/23/2007 6:29:35 PM 1.8347E-01	9.456E-02	9.591E-02	2.751E-01	PCI/SA	0.956 1.0E+0 8.29E-2
33484	9JMVNQ10	J7A1501371	P-0825	FILTER	1/12/2007 10:00:00	12/19/2006 9:42:00 AM		
ALPHA	BAS7	0	1/25/2007 7:54:30 PM 5.5273E+00	1.684E+00	1.805E+00	4.94E+00	PCI/SA	1.0 1.0E+0 2.063E-2
TH-228	9NS1	0	1/23/2007 6:29:35 PM 1.9412E-02	6.438E-02	6.44E-02	3.263E-01	PCI/SA	1.098 1.0E+0 8.272E-2
TH-230	9NS1	0	1/23/2007 6:29:35 PM 1.6868E-01	8.589E-02	8.706E-02	2.248E-01	PCI/SA	1.098 1.0E+0 8.272E-2
TH-232	9NS1	0	1/23/2007 6:29:35 PM 1.8742E-02	4.191E-02	4.194E-02	2.248E-01	PCI/SA	1.098 1.0E+0 8.272E-2
33484	9JMVNW10	J7A1501372	P-0583	FILTER	1/12/2007 10:00:00	12/19/2006 10:03:00 AM		
ALPHA	BAS7	0	1/25/2007 7:54:30 PM 1.0179E+00	8.912E-01	8.987E-01	3.652E+00	PCI/SA	1.0 1.0E+0 2.078E-2
TH-228	9NS1	0	1/23/2007 6:29:35 PM 3.96E-02	6.261E-02	6.27E-02	2.915E-01	PCI/SA	0.95 1.0E+0 8.294E-2
TH-230	9NS1	0	1/23/2007 6:29:35 PM 3.0588E-01	1.178E-01	1.207E-01	2.814E-01	PCI/SA	0.95 1.0E+0 8.294E-2
TH-232	9NS1	0	1/23/2007 6:29:35 PM -1.9117E-02	4.275E-02	4.278E-02	2.293E-01	PCI/SA	0.95 1.0E+0 8.294E-2
33484	JMW721AB	J7A160000316	INTRA-LAB BLANK	FILTER	1/12/2007 10:00:00	12/19/2006 9:42:00 AM		
ALPHA	BAS7	0	B	1.926E-02	1.941E-02	8.013E-02	PCI/SA	1.0 1.0E+0 1.0E+0
33484	JMW721CS	J7A160000316	INTRA-LAB CHECK	FILTER	1/12/2007 10:00:00	12/19/2006 9:42:00 AM		
ALPHA	BAS7	0	S	1.246E-01	2.864E-01	1.03E-01	PCI/SA	2.2642E+00 1.0 1.0E+0 1.0E+0

7016316, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 4,

**Results Inserted | ReTestInserted | Updated | NotInserted => 6 | 0 | 0 | 0.

**Diff RptDb | Qtims => .

Alpha Beta, Alpha by GPC-Am , Results Summary Report

1/26/2007 9:26:30 AM

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Alpha by GPC-Am Richland Standard Gross Alpha/Beta Wo Blk Subt														
Calc	S7	FILTER	JMVNQ1AE	ALPHA	5.53E+00	(1.81E+00)	PCI/SA	R	2.01E+00	4.94E+00			100%	
Calc	S7	FILTER	JMVNW1AE	ALPHA	1.02E+00	(8.99E-01)	U4 PCI/SA	R	1.37E+00	3.65E+00			100%	
Calc	S7	FILTER	JMVN11AE	ALPHA	3.15E+00	(1.56E+00)	PCI/SA	R	2.30E+00	5.48E+00			100%	
Calc	S7	FILTER	JMVN41AE	ALPHA	1.79E+00	(1.42E+00)	U4 PCI/SA	R	2.39E+00	5.67E+00			100%	
Calc	S7	FILTER	JMW721AA	ALPHA	2.09E-02	(1.94E-02)	U4 PCI/SA	R	3.10E-02	8.01E-02	B		100%	
Calc	S7	FILTER	JMW721AC	ALPHA	2.19E+00	(2.86E-01)	PCI/SA	R	4.22E-02	1.03E-01	S		100%	97%

OK
UMA
12/10/07

P. Anderson
1-29-07

Detailed Report

1/26/2007 9:26:31 AM

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol			
1	Calc	S7	FILTER	*STLE GabW0BS	JMVNd1AE	PCI/SA		12/19/06 09:42	01/25/07 19:54 00.8			1	1.00 Sa	0.020626 Sa			
	Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	01/25/07 21:09	ALPHA	23	22	GPC10A	1.5	N	N	4.3198E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
	Sq	Calc Date	Parameter	Sample Cnt	Bkgnd Cnt		Y	(2.960E-02)	(0.000E+00)		8%				(0.000E+00)	48.482332	
0	01/26/07	ALPHA	150	500	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BkLcc/MDC	StdDvMdC/LcC			
	Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
1	Calc	S7	FILTER	*STLE GabW0BS	JMVNW1AE	PCI/SA		12/19/06 10:03	01/25/07 19:54 00.4			1	1.00 Sa	0.020777 Sa			
	Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	01/25/07 21:09	ALPHA	6	10	GPC10B	1.5	N	N	4.2599E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
	Sq	Calc Date	Parameter	Sample Cnt	Bkgnd Cnt		Y	(2.612E-02)	(0.000E+00)		8%				(0.000E+00)	48.130257	
0	01/26/07	ALPHA	150	500	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BkLcc/MDC	StdDvMdC/LcC			
	Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
2	Calc	S7	FILTER	*STLE GabW0BS	JMVN11AE	PCI/SA		12/19/06 10:23	01/25/07 19:54 00.7			1	1.00 Sa	0.020889 Sa			
	Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	01/25/07 21:09	ALPHA	14	2.0000E-02	0.046949	0.046949		1.00 Sa	100%								
	Sq	Calc Date	Parameter	Sample Cnt	Bkgnd Cnt		(1.7512E-02)	(0.04138)		(0.014142)							
0	01/26/07	ALPHA	(0.89889)	(1.556759)	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BkLcc/MDC	StdDvMdC/LcC			
	Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
3	Calc	S7	FILTER	*STLE GabW0BS	JMVN11AE	PCI/SA		12/19/06 10:23	01/25/07 19:54 00.7			1	1.00 Sa	0.020889 Sa			
	Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	01/25/07 21:09	ALPHA	19	31	GPC10C	1.5	N	N	4.4325E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
	Sq	Calc Date	Parameter	Sample Cnt	Bkgnd Cnt		Y	(2.861E-02)	(0.000E+00)		8%				(0.000E+00)	47.873087	
0	01/26/07	ALPHA	(1.556759)	(3.1120E-02)	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BkLcc/MDC	StdDvMdC/LcC			
	Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
4	Calc	S7	FILTER	*STLE GabW0BS	JMVN41AE	PCI/SA		12/19/06 10:29	01/25/07 19:54 00.7			1	1.00 Sa	0.020737 Sa			
	Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	01/25/07 21:09	ALPHA	15	32	GPC10D	1.5	N	N	4.3701E-01	1.0000E+00	N	100%	N	1.0000E+00	4.5045E-01	1.0000E+00	
	Sq	Calc Date	Parameter	Sample Cnt	Bkgnd Cnt		Y	(2.932E-02)	(0.000E+00)		8%				(0.000E+00)	48.222322	
0	01/26/07	ALPHA	150	500	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BkLcc/MDC	StdDvMdC/LcC			
	Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		

() -1s Uncertainties, Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

IDC - Instrument Detection Level in Conc Units, MDC - Minimum Detectable Concentration

STL Richland

Page 1

RADCALC v4.8.26

Batch Nbr: 7016316 Alpha Beta, Alpha by GPC-Am , Calculated Results 1/26/2007 9:26:31 AM

Sq	Catc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Voi Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BikLcc/MDC	StddVmdd/LcC
0	01/26/07	ALPHA	R	1.789402 (1.416649)	U4	3.60000E-02 (2.8190E-02)	0.082378 (0.065077)	0.082378 (0.065077)	1.00 Sa (0.014142)	100%	100%	5.672238 2.38853		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value
0	01/25/07 21:09	ALPHA	7	13	GPC10F	1.5	N	N	4.4569E-01 (2.966E-02)	1.0000E+00 (0.000E+00)	N	100% 8%	N	1.0000E+00 (0.000E+00)
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BikLcc/MDC	StddVmdd/LcC
0	01/26/07	ALPHA	R	0.020887 (0.019413)	U4	2.06667E-02 (1.9055E-02)	0.04637 (0.043026)	0.04637 (0.043026)	1.00 Sa (0.017321)	1.00 Sa	100%	0.080133 0.030955		
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYid	Total/Analy Vol	Total/Count Vol
6	Calc	S7	FILTER	*STLE	GabWoBS	JMW721AC	PCI/SA	S	12/19/06 09:42 00.3	01/26/07 08:01 -	ASCO0425 Alq	1	1.00 Sa	
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value
0	01/26/07 09:16	ALPHA	324	23	GPC10A	1.5	N	N	4.3518E-01 (2.981E-02)	1.0000E+00 (0.000E+00)	N	100% 8%	N	1.0000E+00 (0.000E+00)
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/LcC	BikLcc/MDC	StddVmdd/LcC
0	01/26/07	ALPHA	R	2.188197 (0.286448)		2.11400E+00 (1.2038E-01)	4.857803 (0.581648)	4.857803 (0.581648)	1.00 Sa (0.017321)	100%	97%	0.102989 0.042169		

(1) - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC - Method Decision Level in Conc Units, MDC - Minimum Detectable Concentration
 Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 2

RADCALC v4.8.26

STL Richland

RecCnt:6

RADCALC v4.8.26

STL Richland

UST Number: JMVNQ1AE Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-A

Dish Size: 15

File: [quad10.sample.A]JMVNQ1AE.112

Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.A_15;4463

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00023	00000	0150	00000	1000	25-JAN-2007 21:09:30.70

Bkg File: [quad10.bkgrnd]2007-01-25_0517.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00022	0500	0.04	00000	1000	25-JAN-2007 05:17:29.95

UST Number: JMVNW1AE Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-B

Dish Size: 15

File: [quad10.sample.B]JMVNW1AE.112

Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.B_15;4458

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00006	00000	0150	00000	1000	25-JAN-2007 21:09:30.70

Bkg File: [quad10.bkgrnd]2007-01-25_0517.B_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00010	0500	0.02	00000	1000	25-JAN-2007 05:17:29.95

UST Number: JMVN11AE Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-C

Dish Size: 15

File: [quad10.sample.C]JMVN11AE.112

Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.C_15;4469

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00019	00000	0150	00000	1000	25-JAN-2007 21:09:30.70

Bkg File: [quad10.bkgrnd]2007-01-25_0517.C_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00031	0500	0.06	00000	1000	25-JAN-2007 05:17:29.95

UST Number: JMVN41AE Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-D

File: [quad10.sample.D]JMVN41AE.112

Dish Size: 15

Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.D_15;4462

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00015	00000	0150	00000	1000	25-JAN-2007 21:09:30.70

Bkg File: [quad10.bkgrnd]2007-01-25_0517.D_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00032	0500	0.06	00000	1000	25-JAN-2007 05:17:29.95

UST Number: JMW721AA Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-F

File: [quad10.sample.F]JMW721AA.112

Dish Size: 15

Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.F_15;4454

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00007	00000	0150	00000	1000	25-JAN-2007 21:09:30.70

Bkg File: [quad10.bkgrnd]2007-01-25_0517.F_15

(QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00013	0500	0.03	00000	1000	25-JAN-2007 05:17:29.95

UST Number: JMW721AC Isotope: 112 (QREPORT Rev 11-OCT-98)

Detector: 10-A

File: [quad10.sample.A]JMW721AC.112

Dish Size: 15

Bkg File: \$DISK1:[QUAD10.BKGRND]CURRENT.A_15;4464

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00324	00000	0150	00000	1000	26-JAN-2007 09:16:03.60

Bkg File: [quad10.bkgrnd]2007-01-26_0549.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00023	0500	0.05	00000	1000	26-JAN-2007 05:49:25.55

RADIUM 228

SAMPLE AND QC DATA

Lot No., Due Date: J7A150137; 02/09/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7016318; RRA228 Ra-228 by GPC

SDG, Matrix: 33484; FILTER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?

Yes No N/A

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?

Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch?

Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?

Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample?

Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits?

Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits?

Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits?

Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits?

Yes No N/A

3.5 Are the sample yields and MDAs within contract limits?

Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units?

Yes No N/A

4.2 Were analysis volumes entered correctly?

Yes No N/A

4.3 Were Yields entered correctly?

Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements?

Yes No N/A

4.5 Were raw counts reviewed for anomalies?

Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted?

Yes No N/A

5.2 Are all required forms filled out?

Yes No N/A

5.3 Was the correct methodology used?

Yes No N/A

5.4 Was transcription checked?

Yes No N/A

5.5 Were all calculations checked at a minimum frequency?

Yes No N/A

5.6 Are worksheet entries complete and correct?

Yes No N/A

6.0 Comments on any No response:

Yes No N/A

First Level Review

STL Richland

QAS_RADCALCV4.8.26

STL RICHLAND

Date

7/2/07

**SEVERN
TRENT**

STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

OC Batch Number:

7014318

Review Item	Yes (✓)	No (✗)	N/A (✗)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?			
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?			
3. Was the correct methodology used?	✓		
4. Was transcription checked?			
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review:

Sheryl A. Adam

Date: 2-6-07

ICOC Fraction Transfer/Status Report

ByDate: 2/2/2006, 2/7/2007, Batch: '7016318', User: *ALL Order By DateTimeAccepting

Q	Batch	Work Ord	CurStatus	Accepting	Comments
7016318					
AC		CalcC	WoodT	1/18/2007 11:38:50	
SC		wagarr	IsBatched	1/16/2007 3:40:15 PM	ICOC_RADCALC v4.8.26
SC		WoodT	Prep1C	1/18/2007 11:38:50 AM	RICH-RC-5016 REVISION 5
SC		HarrisonJ	Sep2C	2/1/2007 2:12:21 PM	RICH-RC-5005 REVISION 4
SC		DAWKINSO	InCnt1	2/1/2007 3:45:54 PM	RICH-RD-0003 REVISION 4
SC		BlackCL	CalcC	2/2/2007 7:27:52 AM	RICH-RD-0003 REVISION 4
AC		HarrisonJ		2/1/2007 2:12:21 PM	
AC		DAWKINSO		2/1/2007 3:45:54 PM	
AC		BlackCL		2/2/2007 7:27:52 AM	

AC: Accepting Entry, SC: Status Change

STL Richland

Richland Wa.

Page 1

Grp Rec Cnt:4

ICOCFractions v4.8.26

STL RICHLAND

104

2/2/2007 5:24:18 PM

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id	Lot Sample	Client Id	Matrix	Received Date	Sample Date							
	Method	RTst Qc	Analysis Date	Result	Cnt Uncert	Tot uncert	mga	Units	Expected Yield	Volumes			
33484	9JMVN110	J7A1501373	P-0584	FILTER	1/12/2007 10:00:00	12/19/2006	10:23:00 AM						
ALPHA	BAS7	0	1/25/2007 7:54:30 PM	3.1461E+00	1.514E+00	1.557E+00	5.478E+00	PCI/SA	1.0	1.0E+0	2.089E-2		
RA-228	BXTF	0	2/2/2007 7:08:17 AM	5.9799E-01	4.492E-01	4.604E-01	2.114E+00	PCI/SA	0.743	1.0E+0	2.498E-1		
TH-228	9NS1	0	1/23/2007 6:29:35 PM	2.2755E-02	7.547E-02	7.549E-02	3.825E-01	PCI/SA	0.963	1.0E+0	8.4E-2		
TH-230	9NS1	0	1/23/2007 6:29:35 PM	1.7576E-01	9.059E-02	9.188E-02	2.636E-01	PCI/SA	0.963	1.0E+0	8.4E-2		
TH-232	9NS1	0	1/23/2007 6:29:35 PM	0.0E+00	0.0E+00	4.913E-02	2.636E-01	PCI/SA	0.963	1.0E+0	8.4E-2		
33484	9JMVN410	J7A1501374	P-0585	FILTER	1/12/2007 10:00:00	12/19/2006	10:29:00 AM						
ALPHA	BAS7	0	1/25/2007 7:54:30 PM	1.7894E+00	1.401E+00	1.417E+00	5.672E+00	PCI/SA	1.0	1.0E+0	2.074E-2		
RA-228	BXTF	0	2/2/2007 7:08:17 AM	6.4078E-01	4.741E-01	4.746E-01	2.16E+00	PCI/SA	0.759	1.0E+0	2.492E-1		
TH-228	9NS1	0	1/23/2007 6:29:35 PM	2.3752E-02	5.311E-02	5.315E-02	2.849E-01	PCI/SA	0.956	1.0E+0	8.29E-2		
TH-230	9NS1	0	1/23/2007 6:29:35 PM	4.3574E-01	1.468E-01	1.517E-01	2.751E-01	PCI/SA	0.956	1.0E+0	8.29E-2		
TH-232	9NS1	0	1/23/2007 6:29:35 PM	1.8347E-01	9.456E-02	9.591E-02	2.751E-01	PCI/SA	0.956	1.0E+0	8.29E-2		
33484	9JMVNQ10	J7A1501371	P-0825	FILTER	1/12/2007 10:00:00	12/19/2006	9:42:00 AM						
ALPHA	BAS7	0	1/25/2007 7:54:30 PM	5.5273E+00	1.684E+00	1.805E+00	4.94E+00	PCI/SA	1.0	1.0E+0	2.063E-2		
RA-228	BXTF	0	2/2/2007 7:08:17 AM	-1.7808E-01	2.811E-01	3.179E-01	1.673E+00	PCI/SA	0.932	1.0E+0	2.472E-1		
TH-228	9NS1	0	1/23/2007 6:29:35 PM	1.9412E-02	6.438E-02	6.44E-02	3.263E-01	PCI/SA	1.098	1.0E+0	8.272E-2		
TH-230	9NS1	0	1/23/2007 6:29:35 PM	1.6868E-01	8.589E-02	8.706E-02	2.248E-01	PCI/SA	1.098	1.0E+0	8.272E-2		
TH-232	9NS1	0	1/23/2007 6:29:35 PM	1.8742E-02	4.191E-02	4.194E-02	2.248E-01	PCI/SA	1.098	1.0E+0	8.272E-2		
33484	9JMVNW10	J7A1501372	P-0583	FILTER	1/12/2007 10:00:00	12/19/2006	10:03:00 AM						
ALPHA	BAS7	0	1/25/2007 7:54:30 PM	1.0179E+00	8.912E-01	8.987E-01	3.652E+00	PCI/SA	1.0	1.0E+0	2.078E-2		
RA-228	BXTF	0	2/2/2007 7:08:17 AM	9.1608E-01	3.861E-01	4.027E-01	1.71E+00	PCI/SA	0.867	1.0E+0	2.493E-1		
TH-228	9NS1	0	1/23/2007 6:29:35 PM	3.96E-02	6.261E-02	6.27E-02	2.915E-01	PCI/SA	0.95	1.0E+0	8.294E-2		
TH-230	9NS1	0	1/23/2007 6:29:35 PM	3.0588E-01	1.178E-01	1.207E-01	2.814E-01	PCI/SA	0.95	1.0E+0	8.294E-2		
TH-232	9NS1	0	1/23/2007 6:29:35 PM	-1.9117E-02	4.275E-02	4.278E-02	2.293E-01	PCI/SA	0.95	1.0E+0	8.294E-2		
33484	JMW781AB	J7A160000318	INTRA-LAB BLANK	FILTER	1/12/2007 10:00:00	12/19/2006	9:42:00 AM						
RA-228	BXTF	0	B	2/2/2007 7:08:26 AM	2.2405E-01	1.257E-01	1.257E-01	5.514E-01	PCI/SA	0.861	1.0E+0	1.0E+0	
33484	JMW781CS	J7A160000318	INTRA-LAB CHECK	FILTER	1/12/2007 10:00:00	12/19/2006	9:42:00 AM						
RA-228	BXTF	0	S	2/2/2007 7:08:26 AM	4.4178E+00	2.639E-01	3.668E-01	6.443E-01	PCI/SA	5.0376E+00	0.785	1.0E+0	1.0E+0

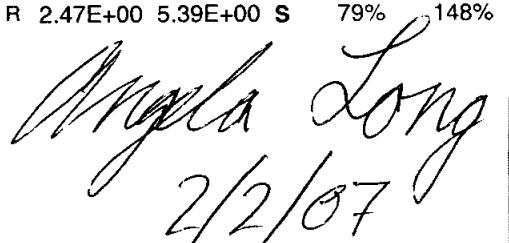
7016318, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 4,

**Results Inserted | ReTestInserted | Updated | NotInserted => 6 | 0 | 0 | 0.

**Diff RptDb | Qtims => *wo:JMW781AA=> , mat:FILTER | Air *wo:JMW781AC=> , mat:FILTER | Air.

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYId
Ra-228 by GPC			Ra-226/Ra-228 Deem With Out Blk Subt.											
Calc	TF	FILTER	JMVNQ1AD	RA-228	-5.34E-01	(4.39E-01)	U4 PCI/SA	R	1.12E+00	2.60E+00			93%	
Calc	TF	FILTER	JMVNQ1AD	RA-228	0.00E+00	(5.67E-01)	U4 PCI/SA	R	1.24E+00	2.89E+00			93%	
Calc	TF	FILTER	JMVNQ1AD	RA-228	0.00E+00	(6.29E-01)	U4 PCI/SA	R	1.38E+00	3.20E+00			93%	
Calc	TF	FILTER	JMVNQ1AD	RA-228	-1.78E-01	(3.18E-01)	U4 PCI/SA	A	7.20E-01	1.67E+00	✓		93%	
Calc	TF	FILTER	JMVNQ1AD	RA-228	3.81E+00	(3.50E+00)	U4 PCI/SA	R	6.75E+00	1.54E+01			93%	
Calc	TF	FILTER	JMVNW1AD	RA-228	1.44E+00	(7.05E-01)	PCI/SA	R	1.13E+00	2.66E+00			87%	
Calc	TF	FILTER	JMVNW1AD	RA-228	7.90E-01	(6.80E-01)	U4 PCI/SA	R	1.26E+00	2.95E+00			87%	
Calc	TF	FILTER	JMVNW1AD	RA-228	5.17E-01	(7.07E-01)	U4 PCI/SA	R	1.40E+00	3.28E+00			87%	
Calc	TF	FILTER	JMVNW1AD	RA-228	9.16E-01	(4.03E-01)	PCI/SA	A	7.28E-01	1.71E+00	✓		87%	
Calc	TF	FILTER	JMVNW1AD	RA-228	0.00E+00	(3.11E+00)	U4 PCI/SA	R	6.83E+00	1.57E+01			87%	
Calc	TF	FILTER	JMVN11AD	RA-228	6.04E-01	(7.23E-01)	U4 PCI/SA	R	1.42E+00	3.29E+00			74%	
Calc	TF	FILTER	JMVN11AD	RA-228	8.56E-01	(8.25E-01)	U4 PCI/SA	R	1.57E+00	3.65E+00			74%	
Calc	TF	FILTER	JMVN11AD	RA-228	3.34E-01	(8.39E-01)	U4 PCI/SA	R	1.75E+00	4.05E+00			74%	
Calc	TF	FILTER	JMVN11AD	RA-228	5.98E-01	(4.60E-01)	U4 PCI/SA	A	9.12E-01	2.11E+00	✓		74%	
Calc	TF	FILTER	JMVN11AD	RA-228	3.03E+00	(3.86E+00)	U4 PCI/SA	R	7.67E+00	1.77E+01			74%	
Calc	TF	FILTER	JMVN41AD	RA-228	2.32E-01	(6.91E-01)	U4 PCI/SA	R	1.45E+00	3.36E+00			76%	
Calc	TF	FILTER	JMVN41AD	RA-228	1.20E+00	(8.83E-01)	U4 PCI/SA	R	1.61E+00	3.73E+00			76%	
Calc	TF	FILTER	JMVN41AD	RA-228	4.94E-01	(8.77E-01)	U4 PCI/SA	R	1.79E+00	4.14E+00			76%	
Calc	TF	FILTER	JMVN41AD	RA-228	6.41E-01	(4.75E-01)	U4 PCI/SA	A	9.33E-01	2.16E+00	✓		76%	
Calc	TF	FILTER	JMVN41AD	RA-228	-8.22E+00	(2.45E+00)	U4 PCI/SA	R	7.74E+00	1.78E+01			76%	
Calc	TF	FILTER	JMW781AA	RA-228	1.48E-01	(1.90E-01)	U4 PCI/SA	R	3.89E-01	8.58E-01	B		86%	
Calc	TF	FILTER	JMW781AA	RA-228	1.97E-01	(2.13E-01)	U4 PCI/SA	R	4.32E-01	9.52E-01	B		86%	
Calc	TF	FILTER	JMW781AA	RA-228	3.28E-01	(2.46E-01)	U4 PCI/SA	R	4.79E-01	1.06E+00	B		86%	
Calc	TF	FILTER	JMW781AA	RA-228	2.24E-01	(1.26E-01)	PCI/SA	A	2.50E-01	5.51E-01	B	✓	86%	
Calc	TF	FILTER	JMW781AA	RA-228	3.71E-01	(9.97E-01)	U4 PCI/SA	R	2.10E+00	4.61E+00	B		86%	
Calc	TF	FILTER	JMW781AC	RA-228	4.73E+00	(6.43E-01)	PCI/SA	R	4.58E-01	1.00E+00	S		79%	94%
Calc	TF	FILTER	JMW781AC	RA-228	4.60E+00	(6.52E-01)	PCI/SA	R	5.08E-01	1.11E+00	S		79%	91%
Calc	TF	FILTER	JMW781AC	RA-228	3.92E+00	(6.09E-01)	PCI/SA	R	5.64E-01	1.23E+00	S		79%	78%
Calc	TF	FILTER	JMW781AC	RA-228	4.42E+00	(3.67E-01)	PCI/SA	A	2.94E-01	6.44E-01	S	✓	79%	88% ✓
Calc	TF	FILTER	JMW781AC	RA-228	7.48E+00	(1.76E+00)	PCI/SA	R	2.47E+00	5.39E+00	S		79%	148%



2/2/07

Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
1	Calc	TF	FILTER	*STLE	Ra228WoBS	JMVNQ1AD	PCI/SA	12/19/06 09:42	02/02/07 07:08	01/22/07 13:25	RATA25340	1	1.00 SA	✓
			5536403;P-0825		J7A150137-1 v4.8.26	FILTER		30.3	02/01/07 11:48	RATA25340 Alq	106%	0.2472 Sa		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value
0	02/01/07 16:34	RA-228	9	104	GPC4A	1	N	N	4.8452E-01	1.0000E+00	N	93%	N	1.6360E+00
			50	400		Y	(2.055E-02)	(0.000E+00)			7%			(0.000E+00)
1	02/01/07 17:29	RA-228	13	104	GPC4A	1	N	N	4.8452E-01	1.0000E+00	N	93%	N	1.8155E+00
			50	400		Y	(2.055E-02)	(0.000E+00)			7%			(0.000E+00)
2	02/01/07 18:24	RA-228	13	104	GPC4A	1	N	N	4.8452E-01	1.0000E+00	N	93%	N	2.0148E+00
			50	400		Y	(2.055E-02)	(0.000E+00)			7%			(0.000E+00)
3	02/02/07 07:08	RA-228	23	140	GPC4A	1	N	N	4.8452E-01	1.0000E+00	N	93%	N	8.4923E+00
			50	400		N	(2.055E-02)	(0.000E+00)			7%			(0.000E+00)
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm	Wo Blk	Dpm-Blk	Dpm	Used	Yield,EnFct	Chem Yld,EFatU	lDC/lLcC
02/02/07	RA-228	R	-0.534228	U4	-8.0000E-02	-0.289889	-0.289889		1.00 SA		93%		2.60113	
			(0.4389)		(6.5192E-02)	(0.237685)		(0.237685)	(0.014142)				1.12026	
02/02/07	RA-228	R	0.00EE00	U4	0.0000E+00	0.00EE00	0.00EE00		1.00 SA		93%		2.886569	
			(0.566806)		(7.6485E-02)	(0.307567)		(0.307567)	(0.014142)				1.243194	
02/02/07	RA-228	R	0.00EE00	U4	0.0000E+00	0.00EE00	0.00EE00		1.00 SA		93%		3.203433	
			(0.629025)		(7.6485E-02)	(0.34133)		(0.34133)	(0.014142)				1.379662	
02/02/07	RA-228	A	-0.178076	U4	-2.66667E-02	-0.096663	-0.096663		1.00 SA		93%		1.672609	
			(0.317905)		(4.2098E-02)	(0.172433)		(0.172433)	(0.008165)				0.720363	
02/02/07	RA-228	R	3.813016	U4	1.1000E-01	2.069067	2.069067		1.00 SA		93%		15.364615	
			(3.50205)		(1.0037E-01)	(1.397283)		(1.397283)	(0.014142)				6.746925	
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
2	Calc	TF	FILTER	*STLE	Ra228WoBS	JMVNW1AD	PCI/SA	12/19/06 10:03	02/02/07 07:08	01/22/07 13:25	RATA25341	1	1.00 SA	✓
			5536403;P-0583		J7A150137-2 v4.8.26	FILTER		30.0	02/01/07 11:48	RATA25341 Alq	99%	0.249323 SA		
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value
0	02/01/07 16:34	RA-228	21	89	GPC4B	1	N	N	4.7234E-01	1.0000E+00	N	87%	N	1.6360E+00
			50	400		Y	(9.012E-03)	(0.000E+00)			7%			(0.000E+00)
1	02/01/07 17:29	RA-228	16	89	GPC4B	1	N	N	4.7234E-01	1.0000E+00	N	87%	N	1.8155E+00
			50	400		Y	(9.012E-03)	(0.000E+00)			7%			(0.000E+00)
2	02/01/07 18:24	RA-228	14	89	GPC4B	1	N	N	4.7234E-01	1.0000E+00	N	87%	N	2.0148E+00
			50	400		Y	(9.012E-03)	(0.000E+00)			7%			(0.000E+00)

1) - (1s Uncertainties). Q - Qualifier, U Result is Less Than Lc = 1.645 • TPU
 IDC - Instrument Detection Level in Conc Units. MDC - Method Decision Level in Conc Units. MDC - Minimum Detectable Concentration
 St-89 Counts are Derived from the Combination of Each St-89/90 and Y-90 Count. All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 1

RÄDCALC v4.8.26
 STL Richland

Alpha Beta, Ra-228 by GPC , Calculated Results

Batch Nbr: 7016318												2/2/2007 7:26:48 AM						
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	BkLcC/MDC	StdDvMdc/LcC	StdDvMdc/LcC	BlkLcC/MDC	StdDvMdc/LcC	BlkLcC/MDC	StdDvMdc/LcC
0	02/02/07 07:08	RA-228	15	120	GPC4B	1	N	N	4.7234E-01	1.0000E+00	N	87%	N	8.4923E+00	4.5045E-01	1.0113E+00	0.000E+00	4.010855
0	02/02/07	RA-228	50	400			N	(9.012E-03)	(0.000E+00)		7%							
0	02/02/07	RA-228	R	1.441586	1.97500E-01	0.788976	0.788976	1.00 SA		87%		2.659772						
0	02/02/07	RA-228	R	(0.704867)	(9.4637E-02)	(0.383587)	(0.383587)	(0.014142)				1.132751						
0	02/02/07	RA-228	R	0.789765	U4	9.75000E-02	0.432236	1.00 SA		87%		2.951647						
0	02/02/07	RA-228	R	(0.679942)	(8.3404E-02)	(0.371451)	(0.371451)	(0.014142)				1.257055						
0	02/02/07	RA-228	R	0.516886	U4	5.75000E-02	0.28289	1.00 SA		87%		3.275654						
0	02/02/07	RA-228	R	(0.707109)	(7.8462E-02)	(0.386719)	(0.386719)	(0.014142)				1.395644						
0	02/02/07	RA-228	A	0.916079	U4	1.17500E-01	0.501367	1.00 SA		87%		1.710318						
0	02/02/07	RA-228	R	(0.402652)	(4.9519E-02)	(0.219764)	(0.219764)	(0.008165)				0.728395						
0	02/02/07	RA-228	R	0.000E00	U4	0.00000E+00	0.00E00	1.00 SA		87%		15.700724						
0	02/02/07	RA-228	R	(3.112899)	(8.2158E-02)	(1.70368)	(1.70368)	(0.014142)				6.827624						
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYld	Total/Analy Vol	Total/Count Vol	Abn	
3	Calc	TF	FILTER	*STLE	Ra228WoBS	JMVN11AD	PCl/SA		12/19/06 10:23	02/02/07 07:08	01/22/07 13:25	RAT25342 Alq		88%	0.249815 SA	1.00 SA ✓		
0	02/01/07 16:34	RA-228	17	107	GPC4C	1	N	N	4.8146E-01	1.0000E+00	N	74%	N	1.6360E+00	4.5045E-01	1.0113E+00		
1	02/01/07 17:29	RA-228	18	107	GPC4C	1	N	N	4.8146E-01	1.0000E+00	N	74%	N	(0.000E+00)	4.002958			
2	02/01/07 18:24	RA-228	15	107	GPC4C	1	N	N	4.8146E-01	1.0000E+00	N	74%	N	1.8155E+00	4.5045E-01	1.0113E+00		
3	02/02/07 07:08	RA-228	18	116	GPC4C	1	N	N	4.8146E-01	1.0000E+00	N	74%	N	2.0148E+00	4.5045E-01	1.0113E+00		
0	02/02/07	RA-228	R	0.604444	U4	7.25000E-02	0.331465	1.00 SA		74%								
0	02/02/07	RA-228	R	(0.722985)	(8.6422E-02)	(0.396095)	(0.396095)	(0.014142)										
0	02/02/07	RA-228	R	0.855815	U4	9.25000E-02	0.469311	1.00 SA		74%								
0	02/02/07	RA-228	R	(0.825053)	(8.8706E-02)	(0.451787)	(0.451787)	(0.014142)										
0	02/02/07	RA-228	R	0.333699	U4	3.25000E-02	0.182994	1.00 SA		74%								
0	02/02/07	RA-228	A	(0.839131)	(8.1662E-02)	(0.460063)	(0.460063)	(0.014142)										
0	02/02/07	RA-228	R	(0.460352)	U4	6.58333E-02	0.327923	1.00 SA		74%								
0	02/02/07	RA-228	R	(3.864242)	U4	7.00000E-02	1.661257	1.00 SA		74%								

0 - (1s Uncertainties) Q - Qualifier U Result is Less Than Lc = 1.645 - TPU
 IDC - Instrument Detection Level in Conc Units, MLCc - Method Decision Level in Conc Units, MDC - Minimum Detectable Concentration
 SI-89 Counts are Derived from the Combination of Each SI-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

RecCnt:4 RADCALC v4.8.26
 STL Richland

Alpha Beta, Ra-228 by GPC , Calculated Results

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
4	Calc	TF	FILTER	*STLE	Ra228vObs	JMVN41AD	PCI/SA	12/19/06 10:29	02/02/07 07:08	01/22/07 13:25	RATA25343	1			1.00 SA	✓		
			536403,P-0585			J7A150137-4 v4.8.26	FILTER		26.6	02/01/07 11:48	RATA25343 Alq	98%		0.249178 SA				
Sq	Cnt	Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	02/01/07 16:34	RA-228	15	109	GPC4D	1	N	N	4.6613E-01	1.0000E+00	N	76%	N		1.6360E+00	4.5045E-01	1.0113E+00	
1	02/01/07 17:29	RA-228	20	400	GPC4D	1	N	N	4.6613E-01	1.0000E+00	N	76%	N		(0.000E+00)	4.013189		
2	02/01/07 18:24	RA-228	16	109	GPC4D	1	N	N	4.6613E-01	1.0000E+00	N	6%	N		1.8155E+00	4.5045E-01	1.0113E+00	
3	02/02/07 07:08	RA-228	5	400	GPC4D	1	N	N	4.6613E-01	1.0000E+00	N	76%	N		(0.000E+00)	4.013189		
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rrt	Dpm	Net Cnt Rrt	Dpm W/o Blk	Dpm-Blk	Vol Used		Yield,EntFct	Chem Yld,EFctU	IDC/IIC/C	BlkLcC/MDC	StdDV/MDC/LcC	
02/02/07	RA-228	R	0.232382	U4	2.75000E-02	0.127109		0.127109			1.00 SA	76%			3.36883			
			(0.691155)		(8.1739E-02)	(0.377992)		(0.377992)			(0.014142)				1.451274			
02/02/07	RA-228	R	1.19564	U4	1.27500E-01	0.653994		0.653994			1.00 SA	76%			3.727417			
			(0.882889)		(9.31173E-02)	(0.481727)		(0.481727)			(0.014142)				1.610533			
02/02/07	RA-228	R	0.494331	U4	4.75000E-02	0.27039		0.27039			1.00 SA	76%			4.136582			
02/02/07	RA-228	R	0.877315	U4	8.4150E-02	(0.47967)		(0.47967)			(0.014142)				1.787323			
02/02/07	RA-228	A	0.640784	U4	6.75000E-02	0.350497		0.350497			1.00 SA	76%			2.159834			
02/02/07	RA-228	R	0.474561	U4	(4.9937E-02)	(0.259277)		(0.259277)			(0.008165)				0.933216			
02/02/07	RA-228	R	-8.224532	U4	-1.87500E-01	-4.49867		-4.49867			1.00 SA	76%			17.844108			
			(2.447776)		(5.2142E-02)	(1.318325)		(1.318325)			(0.014142)				7.737929			
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer	Vial	Mult/EntYid	Total/Analy Vol	Final/Count Vol		
5	Calc	TF	FILTER	*STLE	Ra228vObs	JMW781AA	PCI/SA	B	12/19/06 09:42	02/02/07 07:08	01/22/07 13:25	RATA25344	1			1.00 SA	✓	
			0,INTRA-LAB,BLANK		J7A160000-31B	FILTER			29.5	02/01/07 11:48	RATA25344 Alq	100%			1.00 SA			
Sq	Cnt	Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency 1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
0	02/01/07 16:34	RA-228	37	256	GPC5A	1.5	N	N	5.8645E-01	1.0000E+00	N	86%	N		1.6372E+00	4.5045E-01	1.0113E+00	
1	02/01/07 17:30	RA-228	38	400	GPC5A	1.5	N	Y	(1.193E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		
2	02/01/07 18:25	RA-228	41	256	GPC5A	1.5	N	N	5.8645E-01	1.0000E+00	N	86%	N		1.8170E+00	4.5045E-01	1.0113E+00	
3	02/02/07 07:08	RA-228	37	231	GPC5A	1.5	N	N	5.8645E-01	1.0000E+00	N	86%	N		2.0164E+00	4.5045E-01	1.0113E+00	
			50	334					(1.193E-02)	(0.000E+00)		7%			(0.000E+00)	1.00		

) - (1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLC/C - Minimum Detectable Concentration
 Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 3

RecCnt:5 RADCALC v4.8.26
 STL Richland

Alpha Beta, Ra-228 by GPC , Calculated Results

Batch Nbr: 7016318 2/2/2007 7:26:49 AM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/IleC	BIKLcC/MDC	StdDvMdc/LcC	
0	02/02/07	RA-228	R	0.147774	U4	1.00000E-01 (0.189797)	0.324381 (0.416273)	0.324381 (0.416273)	1.00 SA (0.017321)	86%		0.857513 0.388941			
0	02/02/07	RA-228	R	0.196794	U4	1.20000E-01 (0.213436)	0.431987 (0.46796)	0.431987 (0.46796)	1.00 SA (0.017321)	86%		0.951644 0.431635			
0	02/02/07	RA-228	R	0.327585	U4	1.80000E-01 (0.246271)	0.719087 (1.3416E-01)	0.719087 (0.539253)	1.00 SA (0.017321)	86%		1.056074 0.479002			
0	02/02/07	RA-228	A	0.224051	U4	1.33333E-01 (0.12571)	0.491818 (7.5425E-02)	0.491818 (0.275492)	1.00 SA (0.01)	86%		0.551414 0.250104			
0	02/02/07	RA-228	R	0.37096	U4	4.83832E-02 (0.996526)	0.814302 (1.2989E-01)	0.814302 (2.187068)	1.00 SA (0.017321)	86%		4.608639 2.097786			
Sq	Status	Method Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/Ppt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol	
6	Calc	TF	FILTER	*STLE Ra228WoBS	JMW781AC	PC/SA	\$	12/19/06 09:42	02/02/07 07:08	01/22/07 13:25	RASC4322	1	1.00 SA		
				^J7A160000-318	FILTER			28.9	02/01/07 11:48	RASC4322 Alq		93%	1.00 SA		
0	02/01/07 16:34	RA-228	184	298	GPC5B	1.5	N	N 5.8964E-01	1.0000E+00	N	79%	N	1.6372E+00	4.5045E-01	1.0113E+00
1	02/01/07 17:30	RA-228	166	298	GPC5B	1.5	N	Y (1.387E-02)	(0.000E+00)	N	6%		(0.000E+00)	1.00	
2	02/01/07 18:25	RA-228	136	298	GPC5B	1.5	N	N 5.8964E-01	1.0000E+00	N	79%	N	1.8170E+00	4.5045E-01	1.0113E+00
3	02/02/07 07:08	RA-228	85	269	GPC5B	1.5	N	Y (1.387E-02)	(0.000E+00)	N	6%		(0.000E+00)	1.00	
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/IleC	BIKLcC/MDC	StdDvMdc/LcC	
0	02/02/07	RA-228	R	4.72934		2.93500E+00	10.381459	10.381459	1.00 SA	79%		94%	1.001951		
0	02/02/07	RA-228	R	4.604721		0.643493	(2.7470E-01)	(1.301348)	(0.017321)				0.457579		
0	02/02/07	RA-228	R	3.919342		(0.65199)	2.57500E+00	10.107905	10.107905	1.00 SA	79%		1.111937		
0	02/02/07	RA-228	A	4.417801		(0.609419)	1.97500E+00	8.603417	8.603417	1.00 SA	79%		0.507809		
0	02/02/07	RA-228	A	(0.366752)		(1.4907E-01)	(0.748188)	(0.748188)	(0.01)				1.233957		
0	02/02/07	RA-228	R	7.479309		(1.758015)	8.94611E-01	16.417965	16.417965	1.00 SA	79%		0.563534		
							(3.75999)	(3.75999)	(0.017321)				0.644293		
													0.294241		
													5.387124		
													2.468446		

0 - (1s Uncertainties), Q - Qualifier, U Result is Less than Lc = 1.645 * TPU
 IDC - Instrument Detection Level in Conc Units, MLCC - Method Decision Level in Conc Units, MDC - Minimum Detectable Concentration
 Sr-89 Counts are Derived from the Combination of Each Sr-89/90 and Y-90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 4

RADCALC v4.8.26
 STL Richland

UST Number: JMVNQ1AD Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-A File: [quad4.sample.A]JMVNQ1AD.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A_1;5675

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00009	0050	01206	1850	1-FEB-2007 16:34:24.22
2	00000	00013	0050	01192	1850	1-FEB-2007 17:29:39.96
3	00000	00013	0050	01186	1850	1-FEB-2007 18:24:55.61

Bkg File: [quad4.bkgrnd]2007-02-01_0235.A_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00104	0400	0.26	09654	1850	1-FEB-2007 02:35:56.32

OK
AL
2/2/07

UST Number: JMVNQ1AD Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-A File: [quad4.sample.A]JMVNQ1AD.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.A_1;5676

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00023	0050	01229	1850	2-FEB-2007 07:08:17.07

Bkg File: [quad4.bkgrnd]2007-02-02_0241.A_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00140	0400	0.35	09798	1850	2-FEB-2007 02:41:11.47

UST Number: JMVNW1AD Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-B File: [quad4.sample.B]JMVNW1AD.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.B_1;5674

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00021	0050	01206	1850	1-FEB-2007 16:34:24.22
2	00000	00016	0050	01192	1850	1-FEB-2007 17:29:39.96
3	00000	00014	0050	01186	1850	1-FEB-2007 18:24:55.61

Bkg File: [quad4.bkgrnd]2007-02-01_0235.B_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00089	0400	0.22	09654	1850	1-FEB-2007 02:35:56.32

UST Number: JMVNW1AD Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-B File: [quad4.sample.B]JMVNW1AD.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.B_1;5675

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00015	0050	01229	1850	2-FEB-2007 07:08:17.07

Bkg File: [quad4.bkgrnd]2007-02-02_0241.B_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00120	0400	0.30	09798	1850	2-FEB-2007 02:41:11.47

UST Number: JMVN11AD Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-C File: [quad4.sample.C]JMVN11AD.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C_1;5677

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00017	0050	01206	1850	1-FEB-2007 16:34:24.22
2	00000	00018	0050	01192	1850	1-FEB-2007 17:29:39.96
3	00000	00015	0050	01186	1850	1-FEB-2007 18:24:55.61

Bkg File: [quad4.bkgrnd]2007-02-01_0235.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00107	0400	0.27	09654	1850	1-FEB-2007 02:35:56.32

UST Number: JMVN11AD Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-C File: [quad4.sample.C]JMVN11AD.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.C_1;5678

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00018	0050	01229	1850	2-FEB-2007 07:08:17.07

Bkg File: [quad4.bkgrnd]2007-02-02_0241.C_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00116	0400	0.29	09798	1850	2-FEB-2007 02:41:11.47

UST Number: JMVN41AD Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 4-D File: [quad4.sample.D] JMVN41AD.180
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND] CURRENT.D_1;5691

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00015	0050	01206	1850	1-FEB-2007 16:34:24.22
2	00000	00020	0050	01192	1850	1-FEB-2007 17:29:39.96
3	00000	00016	0050	01186	1850	1-FEB-2007 18:24:55.61

Bkg File: [quad4.bkgrnd] 2007-02-01_0235.D_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00109	0400	0.27	09654	1850	1-FEB-2007 02:35:56.32

UST Number: JMVN41AD Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 4-D File: [quad4.sample.D]JMVN41AD.430
Dish Size: 1 Bkg File: \$DISK1:[QUAD4.BKGRND]CURRENT.D_1;5692

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00005	0050	01229	1850	2-FEB-2007 07:08:17.07

Bkg File: [quad4.bkgrnd]2007-02-02_0241.D_1 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00115	0400	0.29	09798	1850	2-FEB-2007 02:41:11.47

UST Number: JMW781AA Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 5-A File: [quad5.sample.A]JMW781AA.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.A_15;5720

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00037	0050	01268	1800	1-FEB-2007 16:34:48.30
2	00000	00038	0050	01269	1800	1-FEB-2007 17:30:04.02
3	00000	00041	0050	01249	1800	1-FEB-2007 18:25:19.73

Bkg File: [quad5.bkgrnd]2007-02-01_0235.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00256	0400	0.64	10175	1800	1-FEB-2007 02:35:53.78

UST Number: JMW781AA Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 5-A

Dish Size: 15

File: [quad5.sample.A]JMW781AA.430

Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.A_15;5721

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00037	0050	01326	1800	2-FEB-2007 07:08:26.80

Bkg File: [quad5.bkgrnd]2007-02-02_0131.A_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00231	0334	0.69	08721	1800	2-FEB-2007 01:31:08.61

UST Number: JMW781AC Isotope: 180 (QREPORT Rev 11-OCT-98)

Detector: 5-B File: [quad5.sample.B]JMW781AC.180
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.B_15;5713

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00184	0050	01268	1800	1-FEB-2007 16:34:48.30
2	00000	00166	0050	01269	1800	1-FEB-2007 17:30:04.02
3	00000	00136	0050	01249	1800	1-FEB-2007 18:25:19.73

Bkg File: [quad5.bkgrnd]2007-02-01_0235.B_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00298	0400	0.75	10175	1800	1-FEB-2007 02:35:53.78

UST Number: JMW781AC Isotope: 430 (QREPORT Rev 11-OCT-98)

Detector: 5-B File: [quad5.sample.B]JMW781AC.430
Dish Size: 15 Bkg File: \$DISK1:[QUAD5.BKGRND]CURRENT.B_15;5714

Cycle	Alpha	Beta	Min	Guard	Volts	Finish Date/Time
1	00000	00085	0050	01326	1800	2-FEB-2007 07:08:26.80

Bkg File: [quad5.bkgrnd]2007-02-02_0131.B_15 (QREPORT Rev 11-OCT-98)

Cycle	Count	Min	CPM	Guard	Volts	Date/Time
Bkg	00269	0334	0.81	08721	1800	2-FEB-2007 01:31:08.61

RADIUM 226

SAMPLE AND QC DATA

Lot No., Due Date: J7A150137; 02/09/2007

Client, Site: 536403; AIR MONITORING Yerington Mine

QC Batch No., Method Test: 7016317; RRA2267 Ra-226 by ASC-7

SDG, Matrix: 33484; FILTER

1.0 COC

1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?

Yes No N/A

**2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?

Yes No N/A



2.2 Are the QC appropriate for the analysis included in the batch?

Yes No N/A



2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?

Yes No N/A



2.4 Does the Worksheets include a Tracer Vial label for each sample?

Yes No N/A

**3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits?

Yes No N/A



3.2 Is the LCS result, yield, and MDA within contract limits?

Yes No N/A



3.3 Are the MS/MSD results, yields, and MDA within contract limits?

Yes No N/A



3.4 Are the duplicate result, yields, and MDAs within contract limits?

Yes No N/A



3.5 Are the sample yields and MDAs within contract limits?

Yes No N/A

**4.0 Raw Data**

4.1 Were results calculated in the correct units?

Yes No N/A



4.2 Were analysis volumes entered correctly?

Yes No N/A



4.3 Were Yields entered correctly?

Yes No N/A



4.4 Were spectra reviewed/meet contractual requirements?

Yes No N/A



4.5 Were raw counts reviewed for anomalies?

Yes No N/A

**5.0 Other**

5.1 Are all nonconformances included and noted?

Yes No N/A



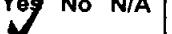
5.2 Are all required forms filled out?

Yes No N/A



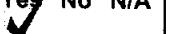
5.3 Was the correct methodology used?

Yes No N/A



5.4 Was transcription checked?

Yes No N/A



5.5 Were all calculations checked at a minimum frequency?

Yes No N/A



5.6 Are worksheet entries complete and correct?

Yes No N/A



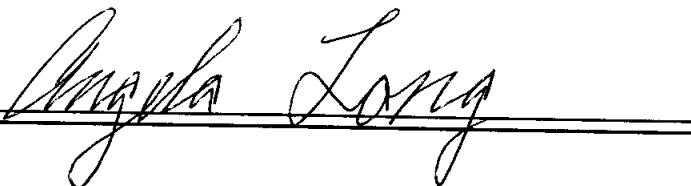
6.0 Comments on any No response:

First Level Review

STL Richland

QAS_RADCALCV4.8.26

STL RICHLAND



Date

2/2/07

**SEVERN
TRENT**

STL

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number:

7014317

Review Item	Yes (✓)	No (✗)	N/A (✗)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery with contract acceptance criteria?	✓		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
8. Do the MS/MSD results and yields meet acceptance criteria?			✓
9. Do the duplicate sample results and yields meet acceptance criteria?			✓
C. Other			
1. Are all Nonconformances included and noted?			✓
2. Are all required forms filled out?			✓
3. Was the correct methodology used?	✓		
4. Was transcription checked?	✓		
5. Were all calculations checked at a minimum frequency?	✓		
6. Were units checked?	✓		

Comments on any "No" response:

Second Level Review:

Sherryl A Adam

Date: 2-6-07

STF 536403, Brown and Caldwell
Caldwell
AnalyDueDate: 02/08/2007
Batch: 7016317 FILTER
SEQ Batch, Test: 7016318, BXTF

Sample Preparation/Analysis

Balance Id:1120373922,1120403183

Brown &

BX Ra-226/228 PrPRC5016, SepRC5005

TE Ba-133 by Nat & Ra-226 by Alpha Scint 7 day ingrow

01 STANDARD TEST SET

Pipet #: 0/24/07 1325 QT

Sep1 DT/Tm Tech: 0/24/07 1325 QT

Sep2 DT/Tm Tech:

Prep Tech: Harrison

Prep Tech: Harrison

PM, Quote: SA , 63174

pCi/samp

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj. Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JMVNQ-1-AC J7A150137-1-SAMP	0.833sa	505.63sa	150.05g,in	0.2472g	RATA25340 01/03/07	100	65	150	1/21/07 07:00	

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj. Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
12/19/2006 09:42 J7A150137-2-SAMP	0.833sa	502.76sa	150.48g,in	0.2493g	RATA25341 01/03/07	7.4624	7.94	112307 161910	1/23/07 07:00	

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj. Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
12/19/2006 10:03 J7A150137-3-SAMP	0.833sa	501.27sa	150.33g,in	0.2498g	RATA25342 01/03/07	7.4331	7.39	112307 161910	1/23/07 07:00	

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj. Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
12/19/2006 10:23 J7A150137-4-SAMP	0.833sa	503.32sa	150.56g,in	0.2492g	RATA25343 01/03/07	6.5225	6.525	112307 161910	1/23/07 07:00	

Work Order, Lot, Sample Date	Total Amt /Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj. Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Count Time Min	Detector Id	Count On Off (24hr) Circle	CR Analyst, Init/Date	Comments:
12/19/2006 10:29						1.0183	1.0183	113107 161910	1/31/07 07:00	

STL Richland
Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2
pd - Prep Dt, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: 4
Prep_SamplePrep v4.8.26

1/19/2007 1:10:03 PM

Sample Preparation/Analysis

Balance Id:1120373922,1120373922,1120

BX Ra-226/228 PrRC5016, SepRC5005

TE Ba-133 by Nai & Ra-226 by Alpha Scint 7 day ingrow

01 STANDARD TEST SET

AnalyDueDate: 02/08/2007

pCi/sampl

SEO Batch, Test: None

Batch: 7016317

STL RICHLAND

Prep Tech: ,HarrisonJ



Work Order, Lot, Sample Date

Total Amt /Unit

Acidified/Unit

Initial Aliquot Amt/Unit

Adj Aliq Amt (Un-Acidified)

QC Tracer Prep Date

Count Time Min

Detector Id

Count On | Off (24h) Circle

CR Analyst, Init/Date

Comments:

5 JMW77-1-AA-B

J7A160000-317-BLK

150.59g.in

150.59g

7.4522

RATA25344

01/03/07

100

678

1/22/07 10:00

12/19/2006 09:42

AmtRec:

#Containers:1

150.69g.in

150.69g

7.4702

RASC4322

11/22/06

91

1/22/07 07:04

6 JMW77-1-AC-C

J7A160000-317-LCS

6.98

6.98

1.0702 v

KMF

1/31/07 11:42:1

12/19/2006 09:42

AmtRec:

#Containers:1

150.69g.in

150.69g

7.4702

RASC4322

11/22/06

91

1/22/07 07:04

Comments:

Scr: Alpha: Beta:

12/19/2006 09:42

AmtRec:

#Containers:1

150.69g.in

150.69g

7.4702

RASC4322

11/22/06

91

1/22/07 07:04

All Clients for Batch:

536403, Brown and Caldwell

, SA ,

63174

RDL:1.00E+00

pCi/sam

LCL:

UCL:

RPD:

Ba-133 RDL:

pCi / sam

LCL:20

UCL:115

RDL:20

Ra-226

RDL:1.00E+00

pCi / sam

LCL:

UCL:

RPD:

JMW771AA-BLK:

Ba-133 RDL:

pCi / sam

LCL:20

UCL:115

RDL:20

Ra-226

RDL:1

pCi / sam

LCL:70

UCL:130

RPD:20

JMW771AA-LCS:

Ba-133 RDL:

pCi / sam

LCL:20

UCL:115

RDL:20

Ra-226

RDL:1

pCi / sam

LCL:70

UCL:130

RPD:20

JMVNQ1AC-SAMP Calc Info:

Uncert Level (#s): 2

Decay to Sadt: Y

Blk subt.: N

Sci .Not.: Y

ODRs: B

JMW771AA-BLK:

STL Richland

Key: in - Initial Amt,

fi - Final Amt,

di - Diluted Amt,

s1 - Sep1,

s2 - Sep2

Page 2

ISV - Insufficient Volume for Analysis

Richland Wa.

pd - Prep Dt,

r - Reference Dt,

ec-Enrichment Cell,

ct-Cocktailed Added

WO Cnt: 6

Prep_SamplePrep v4.8.26

ICOC Fraction Transfer/Status Report

ByDate: 2/2/2006, 2/7/2007, Batch: '7016317', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting	Comments
7016317				
AC	CalcC	WoodT	1/18/2007 11:39:03	
SC		wagarr	IsBatched 1/16/2007 3:40:15 PM	ICOC_RADCALC v4.8.26
SC		WoodT	Prep1C 1/18/2007 11:39:03 AM	RICH-RC-5016 REVISION 5
SC		HarrisonJ	InPrep 1/19/2007 12:45:38 PM	RICH-RC-5005 Revision 5
SC		HarrisonJ	Sep1C 1/22/2007 1:41:13 PM	RICH-RC-5005 REVISION 5
SC		DAWKINSO	InCnt1 1/22/2007 5:42:12 PM	RICH-RD-0007 REVISION 5
SC		DAWKINSO	Cnt1C 1/22/2007 7:28:54 PM	RICH-RD-0007 REVISION 5
SC		PetersonJ	InSep2 1/23/2007 4:26:00 PM	RICH-RC-5005 REVISION 5
SC		PetersonJ	CalcC 1/31/2007 3:47:25 PM	RICH-RC-5005 REVISION 5
AC		HarrisonJ	1/19/2007 12:45:38	
AC		HarrisonJ	1/22/2007 1:41:13 PM	
AC		DAWKINSO	1/22/2007 5:42:12 PM	
AC		DAWKINSO	1/22/2007 7:28:54 PM	
AC		PetersonJ	1/23/2007 4:26:00 PM	
AC		PetersonJ	1/31/2007 3:47:25 PM	

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

Page 1

Grp Rec Cnt: 7

ICOFCFractions v4.8.26

2/2/2007 5:25:48 PM

Rpt DB Transfer log (Batch Results)

SDG or Batch Isotope	Rpt Db Id Method	Lot Sample Analysis Date	Client Id Result	Matrix	Received Date		Sample Date		Expected Yield	Volumes
					Cnt	Uncert	Tot Uncert	mg		
33484	9JMVN110	J7A1501373	P-0584	FILTER	1/12/2007	10:00:00	12/19/2006	10:23:00 AM		
	ALPHA	BAS7	0	1/25/2007 7:54:30 PM	3.1461E+00	1.514E+00	1.557E+00	5.478E+00	PCI/SA	1.0
	RA-226	BXTE	0	1/31/2007 2:15:00 PM	6.3017E-01	2.08E-01	2.192E-01	6.06E-01	PCI/SA	0.876
	RA-228	BXTF	0	2/2/2007 7:08:17 AM	5.9799E-01	4.492E-01	4.604E-01	2.114E+00	PCI/SA	0.743
	TH-228	9NS1	0	1/23/2007 6:29:35 PM	2.2755E-02	7.547E-02	7.549E-02	3.825E-01	PCI/SA	0.963
	TH-230	9NS1	0	1/23/2007 6:29:35 PM	1.7576E-01	9.059E-02	9.188E-02	2.636E-01	PCI/SA	0.963
	TH-232	9NS1	0	1/23/2007 6:29:35 PM	0.0E+00	0.0E+00	4.913E-02	2.636E-01	PCI/SA	0.963
33484	9JMVN410	J7A1501374	P-0585	FILTER	1/12/2007	10:00:00	12/19/2006	10:29:00 AM		
	ALPHA	BAS7	0	1/25/2007 7:54:30 PM	1.7894E+00	1.401E+00	1.417E+00	5.672E+00	PCI/SA	1.0
	RA-226	BXTE	0	1/31/2007 2:16:00 PM	2.0851E-01	1.269E-01	1.288E-01	4.286E-01	PCI/SA	0.982
	RA-228	BXTF	0	2/2/2007 7:08:17 AM	6.4078E-01	4.741E-01	4.746E-01	2.16E+00	PCI/SA	0.759
	TH-228	9NS1	0	1/23/2007 6:29:35 PM	2.3752E-02	5.311E-02	5.315E-02	2.849E-01	PCI/SA	0.956
	TH-230	9NS1	0	1/23/2007 6:29:35 PM	4.3574E-01	1.468E-01	1.517E-01	2.751E-01	PCI/SA	0.956
	TH-232	9NS1	0	1/23/2007 6:29:35 PM	1.8347E-01	9.456E-02	9.591E-02	2.751E-01	PCI/SA	0.956
33484	9JMVNQ10	J7A1501371	P-0825	FILTER	1/12/2007	10:00:00	12/19/2006	9:42:00 AM		
	ALPHA	BAS7	0	1/25/2007 7:54:30 PM	5.5273E+00	1.684E+00	1.805E+00	4.94E+00	PCI/SA	1.0
	RA-226	BXTE	0	1/31/2007 2:15:00 PM	4.0767E-01	1.123E-01	1.193E-01	2.818E-01	PCI/SA	1.058
	RA-228	BXTF	0	2/2/2007 7:08:17 AM	-1.7808E-01	2.811E-01	3.179E-01	1.673E+00	PCI/SA	0.932
	TH-228	9NS1	0	1/23/2007 6:29:35 PM	1.9412E-02	6.438E-02	6.444E-02	3.263E-01	PCI/SA	1.098
	TH-230	9NS1	0	1/23/2007 6:29:35 PM	1.6868E-01	8.589E-02	8.706E-02	2.248E-01	PCI/SA	1.098
	TH-232	9NS1	0	1/23/2007 6:29:35 PM	1.8742E-02	4.191E-02	4.194E-02	2.248E-01	PCI/SA	1.098
33484	9JMVNW10	J7A1501372	P-0583	FILTER	1/12/2007	10:00:00	12/19/2006	10:03:00 AM		
	ALPHA	BAS7	0	1/25/2007 7:54:30 PM	1.0179E+00	8.912E-01	8.987E-01	3.652E+00	PCI/SA	1.0
	RA-226	BXTE	0	1/31/2007 2:07:00 PM	2.0385E-01	1.131E-01	1.151E-01	3.704E-01	PCI/SA	0.994
	RA-228	BXTF	0	2/2/2007 7:08:17 AM	9.1608E-01	3.861E-01	4.027E-01	1.71E+00	PCI/SA	0.867
	TH-228	9NS1	0	1/23/2007 6:29:35 PM	3.96E-02	6.261E-02	6.27E-02	2.915E-01	PCI/SA	0.95
	TH-230	9NS1	0	1/23/2007 6:29:35 PM	3.0588E-01	1.178E-01	1.207E-01	2.814E-01	PCI/SA	0.95
	TH-232	9NS1	0	1/23/2007 6:29:35 PM	-1.9117E-02	4.275E-02	4.278E-02	2.293E-01	PCI/SA	0.95
33484	JMW771AB	J7A160000317	INTRA-LAB BLANK	FILTER	1/12/2007	10:00:00	12/19/2006	9:42:00 AM		
	RA-226	BXTE	0	B	1/31/2007 2:17:00 PM	2.7239E-02	2.622E-02	2.636E-02	9.462E-02	PCI/SA
33484	JMW771CS	J7A160000317	INTRA-LAB CHECK	FILTER	1/12/2007	10:00:00	12/19/2006	9:42:00 AM		
	RA-226	BXTE	0	S	1/31/2007 2:43:00 PM	1.253E+00	8.307E-02	1.603E-01	8.047E-02	PCI/SA
0.934										

7016317, **Samples Inserted | Updated | NotUpdated => 2 | 0 | 4,
 **Results Inserted | ReTestInserted | Updated | NotInserted => 6 | 0 | 0 | 0.
 **Diff RptDb | Qtims => .

Batch Nbr: 7016317

Alpha Beta, Ra-226 by ASC-7 , Results

2/2/2007 4:09:30 PM

Summary Report

Status	Meth	Matrix	Wrk Ord	Parameter	Sa Act	Uncert	Q	Units	Av	ILcC	IDC	QC	Yield	RYld
Ra-226 by ASC-7				Richland Standard Ra-226/Ra-228 Deem Wo Blk Subt.										
Calc	TE	FILTER	JMVNQ1AC	RA-226	4.08E-01 ✓	(1.19E-01)		PCI/SA	R 1.14E-01	2.82E-01 ✓				106%
Calc	TE	FILTER	JMVNW1AC	RA-226	2.04E-01 ✓	(1.15E-01)		PCI/SA	R 1.53E-01	3.70E-01 ✓				99%
Calc	TE	FILTER	JMVN11AC	RA-226	6.30E-01 ✓	(2.19E-01)		PCI/SA	R 2.59E-01	6.06E-01 ✓				88%
Calc	TE	FILTER	JMVN41AC	RA-226	2.09E-01 ✓	(1.29E-01)	U4	PCI/SA	R 1.86E-01	4.29E-01 ✓				98%
Calc	TE	FILTER	JMW771AA	RA-226	2.72E-02 ✓	(2.64E-02)	U4	PCI/SA	R 3.97E-02	9.46E-02	B ✓			100%
Calc	TE	FILTER	JMW771AC	RA-226	1.25E+00	(1.60E-01)		PCI/SA	R 3.32E-02	8.05E-02	S ✓			93% ✓
														91% ✓

Angela Long
2/2/07

() - (1s Uncertainties)
 IDC - Instrument Detection Level in Conc Units
 MLcC- Method Decision Level in Conc Units
 MDC - Minimum Detectable Concentration
 *Std - Lc, MDC using StdDev for Set of Blanks

Q - Qualifier, U is Less Than Lc = 1.645*TPU
 All Results Displayed to Three Digits Regardless of Significants
 Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 1

RecCnt:6
 RADCALC v4.8.26
 STL Richland

Detailed Report

Detailed Report

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	Analysis Date/Pt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol		
1	Calc	TE	FILTER	*STLE	Ra226WoBS	JMVNQ1AC	PCI/SA	12/19/06 09:42	01/31/07 14:15	01/23/07 16:19	RATA25340	1	1.00 SA	✓			
		CID:P-0825LOT:JTA1501371 v4.8.26					FILTER			01/31/07 11:15	RATA25340	AQ	106%	0.2472 SA			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:15	RA-226	26	7	ASC3MA	ASC	N	2.4421E+00	1.0000E+00	N	106%	N			1.3546E+00	4.5045E-01	1.0000E+00
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/ILC	BlkLcC/MDC	StdDvMdC/LCC	
02/02/07	RA-226	R	0.407674	4.03335E-01	(1.1111E-01)	(0.064436)	(0.064436)	(0.014142)			106%			0.281817			
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	Analysis Date/Pt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol		
2	Calc	TE	FILTER	*STLE	Ra226WoBS	JMVNW1AC	PCI/SA	12/19/06 10:03	01/31/07 14:07	01/23/07 16:19	RATA25341	1	1.00 SA	✓			
		CID:P-0563LOT:JTA1501372 v4.8.26					FILTER			01/31/07 11:07	RATA25341	AQ	99%	0.2493 SA			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:07	RA-226	16	9	ASC9RA	ASC	N	2.0536E+00	1.0000E+00	N	99%	N			1.3550E+00	4.5045E-01	1.0000E+00
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/ILC	BlkLcC/MDC	StdDvMdC/LCC	
02/02/07	RA-226	R	0.203854	1.70000E-01	(9.4340E-02)	(0.063446)	(0.063446)	(0.014142)			100 SA	99%		0.370404			
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	Analysis Date/Pt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol		
3	Calc	TE	FILTER	*STLE	Ra226WoBS	JMVN11AC	PCI/SA	12/19/06 10:23	01/31/07 14:15	01/23/07 16:19	RATA25342	1	1.00 SA	✓			
		CID:P-0584LOT:JTA1501373 v4.8.26					FILTER			01/31/07 11:15	RATA25342	AQ	88%	0.2498 SA			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:15	RA-226	31	14	ASCASC	ASC	N	1.7118E+00	1.0000E+00	N	88%	N			1.3546E+00	4.5045E-01	1.0000E+00
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/ILC	BlkLcC/MDC	StdDvMdC/LCC	
02/02/07	RA-226	R	0.630173	3.866867E-01	(1.2763E-01)	(0.120175)	(0.120175)	(0.014142)			100 SA	88%		0.606035			
Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	Analysis Date/Pt/Wt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol		
4	Calc	TE	FILTER	*STLE	Ra226WoBS	JMVN41AC	PCI/SA	12/19/06 10:29	01/31/07 14:16	01/23/07 16:19	RATA25343	1	1.00 SA	✓			
		CID:P-0585LOT:JTA1501374 v4.8.26					FILTER			01/31/07 11:16	RATA25343	AQ	98%	0.2492 SA			
Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency 2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:16	RA-226	24	17	ASCCUB	ASC	N	2.3517E+00	1.0000E+00	N	98%	N			1.3545E+00	4.5045E-01	1.0000E+00
Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used			Yield,EnFct	Chem Yld,EFctU	IDC/ILC	BlkLcC/MDC	StdDvMdC/LCC	
50	60	60	Y	(1.150E-01)	(0.000E+00)		(1.150E-01)	(0.000E+00)		8%				(0.000E+00)	4.012841		

(1s Uncertainties), Q - Qualifier, U Result is Less Than Lc = 1.645 * TPU

IDC - Instrument Detection Level in Conc Units, MlcC - Method Decision Level in Conc Units, MDC - Minimum Detectable Concentration
SI-89 - Sample Count are Derived from the Combination of Each Sr-89/90 and Y-88/90 Count, All Result Digits May Not be Significant, Date/Time - mm/dd/yy hh:mm, 24hr Time

Page 1

RecCnt:4 RADCALC v4.8.26

STL Richland

131

Batch Nbr: 7016317

Alpha Beta, Ra-226 by ASC-7 , Calculated Results

2/2/2007 4:09:31 PM

Sq	Calc Date	Parameter	Avg	Sa Act	Q	Net Cnt Rt	Dpm Wo Blk	Dpm-Blk	Vol Used	Yield,EnFct	Chem Yld,EFctU	IDC/I.LCC	BkLcC/MDC	StdDvMdC/I..CC
02/02/07	RA-226	R	0.208511	U4	1.98667E-01	0.115349	0.115349	1.00 SA	98%			0.428585		

Sq	Status	Method	Matrix	Protocol	Equation Set	Wrk Ord	Units/Matrix	QC/BB	Sa/On Date	AnalysisDate/PptWt	Sep1/Sep2 Date	QC/Tracer Vial	Mult/EntYld	Total/Analy Vol	Final/Count Vol
5	Calc	TE	FILTER	*STLE	Ra226WoBS	JMW771AA	PCI/SA	B	12/19/06 09:42	01/31/07 14:17	01/23/07 16:19	RATA25344	1	1.00 SA	

CID:INTRA-LAB BLANKLOT:J7A160000317 v4.8.26

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	14	11	ASCGSA ASC	N	2.1653E+00	1.0000E+00	N	100%	N				1.3545E+00	4.5045E-01	1.0000E+00

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

Sq	Cnt Date	Parameter	Sample Cnt	Bkgnd Cnt	Instr	Geom	Trc/Av	Ent	Efficiency1	Efficiency2	Ent	Yld Fct	Ent	Blk Value	Ingr Fct	Conv Fct/VolAdj Decay	Abn
1	01/31/07 14:17	RA-226	50	60	Y	(7.622E-02)	(0.000E+00)		8%						(0.000E+00)	1.00	

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: JMVNQ1AC Isotope: RA-226

Client: STL Matrix Code: 103

Batch Nbr: 7016317 Activity Unit: PCI/SA Multiplier: 0.9453 ✓
Technician: JP

Analysis Size: 0.2472 Analysis Unit: SA

Report Date: 31-JAN-2007 15:05:00.80
First Separation Date: 23-JAN-2007 16:19:00.00
Second Separation Date: 31-JAN-2007 11:15:00.00

Detector ID: 3 Cell ID: 3MA

Bkg Date: 30-JAN-2007 09:27:41.72 Bkg Duration: 000060.0
Bkg Counts: 000007

Count Date: 31-JAN-2007 14:15:00.34 Count Duration: 000050.0
Counts: 000026

End of Report

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: JMVNW1AC Isotope: RA-226
Client: STL Matrix Code: 103
Batch Nbr: 7016317 Activity Unit: PCI/SA Multiplier: 1.0058✓
Technician: JP
Analysis Size: 0.2493 Analysis Unit: SA
Report Date: 31-JAN-2007 14:57:00.59
First Separation Date: 23-JAN-2007 16:19:00.00
Second Separation Date: 31-JAN-2007 11:07:00.00
Detector ID: 9 Cell ID: 9RA
Bkg Date: 30-JAN-2007 09:27:14.91 Bkg Counts: 000009 Bkg Duration: 000060.0
Count Date: 31-JAN-2007 14:07:00.27 Counts: 000016 Count Duration: 000050.0

End of Report

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: JMVN11AC Isotope: RA-226
Client: STL Matrix Code: 103
Batch Nbr: 7016317 Activity Unit: PCI/SA Multiplier: 1.1421 ✓
Technician: JP
Analysis Size: 0.2498 Analysis Unit: SA
Report Date: 31-JAN-2007 15:05:00.86
First Separation Date: 23-JAN-2007 16:19:00.00
Second Separation Date: 31-JAN-2007 11:15:00.00
Detector ID: 10 Cell ID: ASC
Bkg Date: 30-JAN-2007 09:09:59.01 Bkg Counts: 000014 Bkg Duration: 000060.0
Count Date: 31-JAN-2007 14:15:00.39 Counts: 000031 Count Duration: 000050.0

End of Report

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: JMVN41AC

Isotope: RA-226

Client: STL

Matrix Code: 103

Batch Nbr: 7016317

Activity Unit: PCI/SA

Multiplier: 1.0183 ✓

Technician: JP

Analysis Size: 0.2492

Analysis Unit: SA

Report Date: 31-JAN-2007 15:06:00.57

First Separation Date: 23-JAN-2007 16:19:00.00

Second Separation Date: 31-JAN-2007 11:16:00.00

Detector ID: 12

Cell ID: CUB

Bkg Date: 30-JAN-2007 09:35:55.19

Bkg Counts: 000017

Bkg Duration: 000060.0

Count Date: 31-JAN-2007 14:16:00.23

Counts: 000024

Count Duration: 000050.0

End of Report

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: JMW771AA

Isotope: RA-226

Client: STL

Matrix Code: 103

Batch Nbr: 7016317

Activity Unit: PCI/SA

Multiplier: 0.9964 ✓

Technician: JP

Analysis Size: 1.0

Analysis Unit: SA

Report Date: 31-JAN-2007 15:07:00.63

First Separation Date: 23-JAN-2007 16:19:00.00

Second Separation Date: 31-JAN-2007 11:17:00.00

Detector ID: 16

Cell ID: GSA

Bkg Date: 30-JAN-2007 09:10:40.80

Bkg Counts: 000011

Bkg Duration: 000060.0

Count Date: 31-JAN-2007 14:17:00.24

Counts: 000014

Count Duration: 000050.0

End of Report

ALPHA SCINTILLATION REPORT
(Version: 17-Oct-1998)

Sample ID: JMW771AC Isotope: RA-226
Client: STL Matrix Code: 103
Batch Nbr: 7016317 Activity Unit: PCI/SA Multiplier: 1.0702 ✓
Technician: JP
Technician: JP
Analysis Size: 1.0 Analysis Unit: SA

Report Date: 31-JAN-2007 15:33:00.64
First Separation Date: 23-JAN-2007 16:19:00.00
Second Separation Date: 31-JAN-2007 11:43:00.00

Detector ID: 19 Cell ID: KMF

Bkg Date: 30-JAN-2007 09:10:50.86 Bkg Counts: 000009 Bkg Duration: 000060.0

Count Date: 31-JAN-2007 14:43:00.26 Counts: 000248 Count Duration: 000050.0

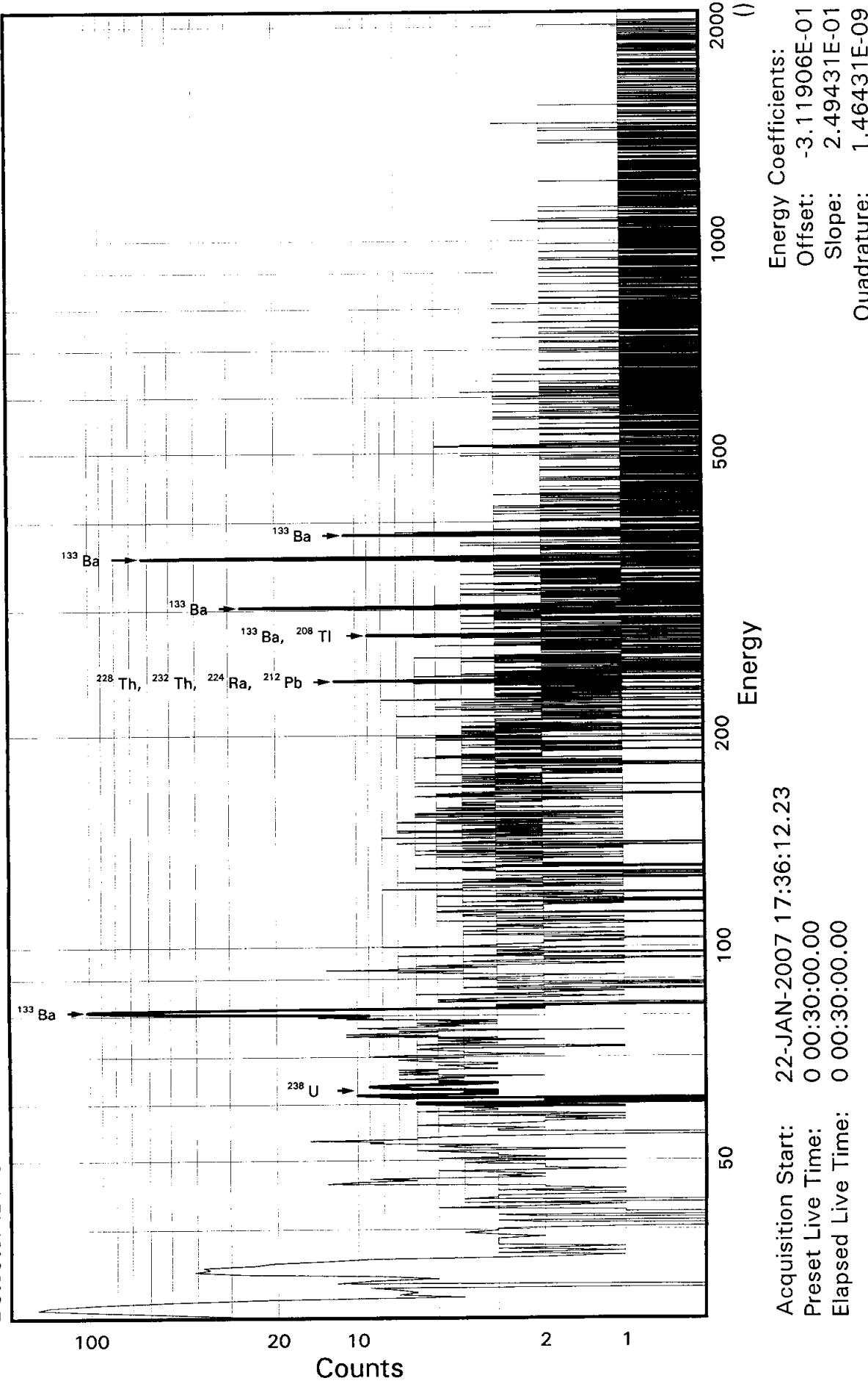
End of Report

STL Richland WA.

BA133

Sample ID: JMVNQ1AC
Detector ID: GER5 1

Batch ID: 7016317



SAMPLE IDENTIFICATION:

JMVNQ1AC

CONFIGURATION ID: GER5:JMVNQ1AC_220171736
TITLE : BA133
SAMPLE ID : JMVNQ1AC

REPORT DATE: 22-JAN-07
ACQUIRE DATE: 22-JAN-07 17:36:12
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

ENERGY OFFSET: -.3119E+00 keV
ENERGY SLOPE: 2.4943E-01 keV/C
ENERGY Q COEFF: 1.4643E-09 keV/C²
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 3-JAN-2007 12:00:00.00
CALIB DATE: 22-JAN-2007 05:12:42.24
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: 7.3665E-01 keV
FWHM SLOPE: 2.7708E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 22-JAN-2007 18:06:27

Configuration : RDND06\$DKA100:[GER5.SAMPLE]JMVNQ1AC_220171736.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:36:12
 Sample ID : JMVNQ1AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Start energy : 19.64 End energy : 2043.12
 Sensitivity : 5.00 Gaussian : 10.00
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	21.64	29	47	0.64	88.01	83	14	1.59E-02	54.9	
2	0	30.96	593	124	0.86	125.36	117	16	3.29E-01	5.9	
3	0	35.21	198	48	1.27	142.42	135	15	1.10E-01	10.4	
4	0	46.92*	16	24	0.92	189.37	183	14	8.80E-03	77.5	
5	0	53.25	47	14	0.70	214.74	210	11	2.60E-02	22.0	
6	0	62.83*	8	64	2.46	253.16	240	20	4.67E-03	244.2	
7	0	81.12	384	61	0.88	326.48	321	15	2.13E-01	7.3	
8	0	238.35*	20	11	0.38	956.82	950	14	1.10E-02	45.7	
9	0	276.57	52	0	1.27	1110.06	1104	15	2.89E-02	13.9	
10	0	302.81	129	0	1.06	1215.26	1207	17	7.17E-02	8.8	
11	0	355.96	306	17	1.06	1428.34	1420	17	1.70E-01	6.5	
12	0	383.65	37	13	0.61	1539.36	1529	18	2.05E-02	28.5	
13	0	387.24	22	7	0.91	1553.74	1549	13	1.19E-02	32.6	

Flag: "*" = Peak area was modified by background subtraction

Configuration : RDND06\$DKA100:[GER5.SAMPLE]JMVNQ1AC_220171736.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.4
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:36:12
 Sample ID : JMVNQ1AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	384	33.00	1.924E+00	2.017E+03	2.024E+03	9.09
	276.40	52	6.90	2.077E+00	1.210E+03	1.214E+03	14.88
	302.84	129	17.80	2.080E+00	1.162E+03	1.166E+03	10.32
	356.00	306	62.05*	2.082E+00	7.897E+02	7.924E+02	8.44
	383.85	37	8.70	2.081E+00	6.793E+02	6.817E+02	29.02

Nuclide Type: NP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
PB-212	238.63	20	44.60*	2.070E+00	7.141E+01	7.141E+01	46.01
	300.09	-----	3.41	2.079E+00	-----	Line Not Found	-----

Flag: "*" = Keyline

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	21.64	29	47	0.64	88.01	83	14	1.59E-02	54.9	1.57E+00	
0	30.96	593	124	0.86	125.36	117	16	3.29E-01	5.9	1.68E+00	
0	35.21	198	48	1.27	142.42	135	15	1.10E-01	10.4	1.72E+00	
0	46.92	16	24	0.92	189.37	183	14	8.80E-03	77.5	1.80E+00	
0	53.25	47	14	0.70	214.74	210	11	2.60E-02	22.0	1.83E+00	
0	62.83	8	64	2.46	253.16	240	20	4.67E-03	***	1.87E+00	T
0	387.24	22	7	0.91	1553.74	1549	13	1.19E-02	32.6	2.08E+00	

Flags: "T" = Tentatively associated

Nuclide	Half-Life			Activity 1-Sigma			
	Half-life	Ratio	Energy	%Abund	(DPM/SAMPL)	%Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.227E+03	14.88	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
			% Abundances Found =		5.44		
RA-224DA	1.91Y	0.03	238.63*	44.60	7.279E+01	46.01	Abun.
			240.98	3.95	---	Not Found	---
			583.14	30.25	---	Not Found	---
			860.37	4.48	---	Not Found	---
			% Abundances Found =		53.55		
TH-228DA	1.91Y	0.03	238.63	44.60	7.279E+01	46.01	Abun.
			240.98	3.95	---	Not Found	---
			583.14*	30.25	---	Not Found	---
			860.37	4.48	---	Not Found	---
			% Abundances Found =		53.55		
TH-232DA	1.41E+10Y	0.00	238.63	44.60	7.141E+01	46.01	Abun.
			338.32*	12.40	---	Not Found	---
			583.14	30.25	---	Not Found	---
			911.07	27.70	---	Not Found	---
			964.60	5.20	---	Not Found	---
			969.11	16.60	---	Not Found	---
			% Abundances Found =		32.61		
U-238DHP	4.47E+09Y	0.00	63.28*	3.80	3.950E+02	244.22	Abun.
			92.59	5.41	---	Not Found	---
			% Abundances Found =		41.26		

Flag: "*" = Keyline

Configuration : RDND06\$DKA100: [GER5.SAMPLE] JMVNQ1AC_220171736.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.4, WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:36:12
 Sample ID : JMVNQ1AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Peak Width (FWHM) : 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.924E+02	6.687E+01	5.531E+01	1.106E+00	14.327
PB-212	7.141E+01	3.286E+01	1.091E+02	2.195E+00	0.654

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	7.098E+01		6.777E+01	3.075E+02	6.169E+00	0.231
NA-22	-7.448E-01		5.486E+00	2.213E+01	4.692E-01	-0.034
NA-24	4.288E+03		2.487E+03	Half-Life too short		
K-40	-3.381E+01		6.162E+01	3.139E+02	6.743E+00	-0.108
SC-46	1.964E+00		5.211E+00	2.363E+01	4.954E-01	0.083
CR-51	-9.354E+01		1.477E+02	5.202E+02	1.041E+01	-0.180
MN-54	3.338E+00		4.245E+00	2.059E+01	4.227E-01	0.162
CO-57	1.377E+02		1.393E+02	5.219E+02	1.079E+01	0.264
CO-58	-8.358E+00		8.081E+00	2.808E+01	5.755E-01	-0.298
FE-59	1.204E+01		1.059E+01	5.240E+01	1.097E+00	0.230
CO-60	-1.640E+00		1.643E+00	4.639E+00	9.878E-02	-0.354
ZN-65	5.115E-03		8.552E+00	3.756E+01	7.873E-01	0.000
SE-75	1.279E+01		1.782E+01	6.987E+01	1.402E+00	0.183
SR-85	-2.418E+01		1.358E+01	4.309E+01	8.659E-01	-0.561
Y-88	0.000E+00		1.006E-01	5.436E+00	1.198E-01	0.000
NB-94	-5.326E+00		5.080E+00	1.773E+01	3.649E-01	-0.300
NB-95	1.674E+01		9.339E+00	4.345E+01	8.874E-01	0.385
TC-95M	-7.215E+00		2.339E+01	8.413E+01	1.701E+00	-0.086
ZR-95	7.252E+00		1.262E+01	5.462E+01	1.115E+00	0.133
ZRNB-95	3.222E+01		1.520E+01	7.308E+01	1.493E+00	0.441
MO-99	-1.383E+03		2.082E+03	7.084E+03	1.461E+02	-0.195
RH-101	2.701E+01		1.949E+01	7.530E+01	1.525E+00	0.359
RH-102M	-7.973E-01		6.788E+00	2.657E+01	5.330E-01	-0.030
RU-103	1.460E+01		1.018E+01	4.569E+01	9.174E-01	0.320
RU-106DA	1.905E+01		6.008E+01	2.546E+02	5.149E+00	0.075
AG-108M	-1.127E+01		8.958E+00	3.038E+01	6.084E-01	-0.371

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
AG-110M	-5.411E+00		7.782E+00	2.877E+01	5.928E-01	-0.188
SN-113DA	5.534E+00		1.270E+01	5.149E+01	1.030E+00	0.107
SB-124	7.176E+00		9.247E+00	3.880E+01	7.837E-01	0.185
SB-125	-4.856E+00		2.128E+01	8.311E+01	1.664E+00	-0.058
SN-126DA	2.828E+00		4.980E+00	2.230E+01	4.524E-01	0.127
I-131	6.520E+00		4.315E+01	1.741E+02	3.482E+00	0.037
CS-134	-8.505E-02		4.820E+00	2.101E+01	4.301E-01	-0.004
CS-137DA	-3.336E+00		5.949E+00	2.307E+01	4.678E-01	-0.145
LA-138	2.400E-01		7.197E+00	3.090E+01	6.627E-01	0.008
CE-139	-1.359E+01		1.860E+01	6.548E+01	1.337E+00	-0.208
BA-140	-9.744E+01		6.781E+01	2.195E+02	4.416E+00	-0.444
BALa-140	1.024E+01		1.793E+01	9.574E+01	2.076E+00	0.107
LA-140	9.002E-05		3.367E-03	Half-Life too short		
CE-141	-6.677E+00		4.684E+01	1.639E+02	3.373E+00	-0.041
CE-144	4.173E+01		1.262E+02	4.612E+02	9.548E+00	0.090
CEPR-144	8.218E+01		2.522E+02	9.219E+02	1.909E+01	0.089
PM-144	-4.158E+00		7.557E+00	2.819E+01	5.700E-01	-0.147
PM-146	-6.039E+00		9.125E+00	3.388E+01	6.790E-01	-0.178
EU-152	-6.145E+01		3.434E+01	1.119E+02	2.237E+00	-0.549
EU-154	-3.753E+00		1.503E+01	5.986E+01	1.269E+00	-0.063
EU-155	1.114E+02		5.648E+01	2.313E+02	4.879E+00	0.482
HF-181	3.225E-01		8.525E+00	3.530E+01	7.084E-01	0.009
BI-207	-3.896E+00		5.903E+00	2.166E+01	4.367E-01	-0.180
TL-208	-2.505E+01		8.283E+00	2.303E+01	4.646E-01	-1.088
BI-210M	1.554E+01		2.083E+01	8.066E+01	1.618E+00	0.193
BI-212	1.640E+02		9.492E+01	4.419E+02	1.351E+01	0.371
BI-214	-3.572E+00		1.656E+01	7.049E+01	1.424E+00	-0.051
PB-214	-1.493E+01		3.006E+01	9.888E+01	1.978E+00	-0.151
RA-223	-1.674E+00		7.599E+01	2.799E+02	5.614E+00	-0.006
RA-224DA	7.279E+01	+	3.349E+01	1.210E+02	2.435E+00	0.601
RA-226DA	-1.030E+01		1.721E+01	7.043E+01	1.423E+00	-0.146
AC-227DA	1.834E+02		1.024E+02	3.814E+02	7.675E+00	0.481
AC-228	-2.146E+00		1.756E+01	8.409E+01	1.736E+00	-0.026
RA-228DA	-2.160E+00		1.767E+01	8.463E+01	1.747E+00	-0.026
TH-228DA	-7.106E+01		2.350E+01	6.533E+01	1.318E+00	-1.088
TH-232DA	1.582E+02		8.962E+01	3.604E+02	7.209E+00	0.439
TH-234DA	3.816E+01		7.975E+02	3.354E+03	6.970E+01	0.011
U-234DA	9.227E+01		6.253E+01	2.454E+02	4.914E+00	0.376
U-235HP	-1.355E+02		1.484E+02	4.957E+02	1.021E+01	-0.273
NP-237DA	-1.579E-01		2.534E+01	9.420E+01	1.885E+00	-0.002
U-238DA	-1.493E+01		3.006E+01	9.888E+01	1.978E+00	-0.151
U-238DHP	3.950E+02	+	9.647E+02	1.801E+03	4.009E+01	0.219
AM-241HP	4.754E+01		4.555E+01	1.556E+02	3.490E+00	0.306

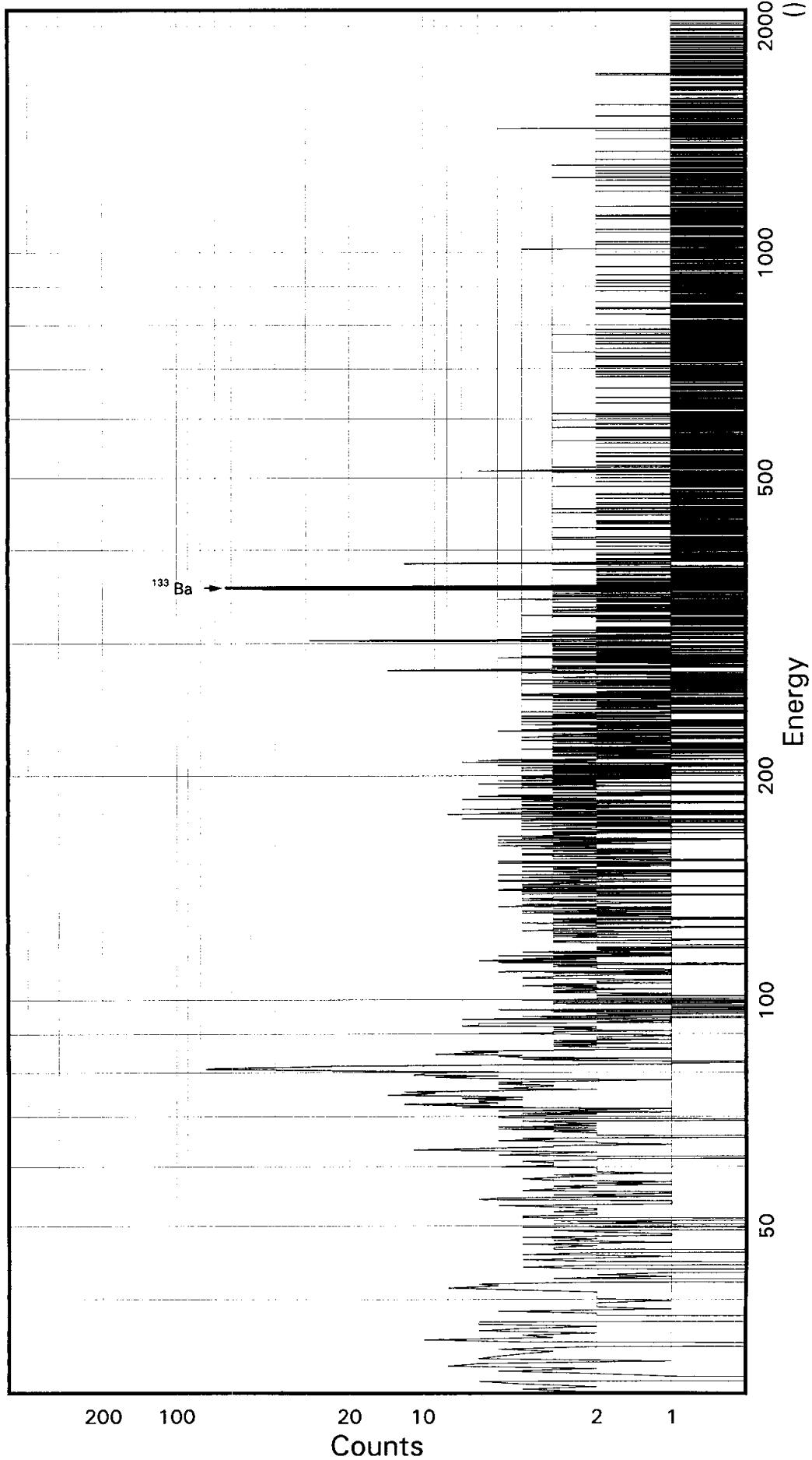
Not Used

STL Richland WA.

BA133

Sample ID: JMVNW1AC
Detector ID: GER4_1

Batch ID: 7016317



Acquisition Start: 22-JAN-2007 17:37:07.68
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:
Offset: -1.11297E-02
Slope: 2.48992E-01
Quadrature: 1.60129E-08

SAMPLE IDENTIFICATION: JMVNW1AC

CONFIGURATION ID: GER4:JMVNW1AC_220171737
TITLE : BA133
SAMPLE ID : JMVNW1AC

REPORT DATE: 22-JAN-07
ACQUIRE DATE: 22-JAN-07 17:37:07
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

ENERGY OFFSET: -.1113E-01 keV
ENERGY SLOPE: 2.4899E-01 keV/C
ENERGY Q COEFF: 1.6013E-08 keV/C²
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 3-JAN-2007 12:00:00.00
CALIB DATE: 22-JAN-2007 05:39:22.88
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: 3.2483E-01 keV
FWHM SLOPE: 4.3363E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]LEP_BKG.NLB

VMS Peak Search Report V1.9 Generated 22-JAN-2007 18:07:27

Configuration : \$DISK1:[GER4.SAMPLE]JMVNW1AC_220171737.CNF;1
Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6
Sample title : BA133
Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:07
Sample ID : JMVNW1AC Sample quantity : 1.0000 SAMPL
Sample type : Sample geometry : BA133T15
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.42 0.0%
Start energy : 19.91 End energy : 2040.81
Sensitivity : 5.00 Gaussian : 10.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	81.15	226	59	0.63	325.95	320	13	1.25E-01	10.1	
2	0	276.42		48	13	0.76 1110.10	1104	13	2.67E-02	21.2	
3	0	302.90		105	11	0.83 1216.44	1209	15	5.83E-02	12.0	
4	0	355.96		282	7	1.04 1429.52	1422	15	1.56E-01	6.3	
5	0	383.91		41	16	1.06 1541.75	1537	12	2.30E-02	24.4	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER4.SAMPLE]JMVNW1AC_220171737.CNF;1
Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.3
Sample title : BA133
Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:07
Sample ID : JMVNW1AC Sample quantity : 1.0000 SAMPL
Sample type : Sample geometry : BA133T15
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.42 0.0%
Energy tolerance : 1.50 Half life ratio : 8.00
Errors propagated: Yes Systematic Error : 5.00 %
Efficiency type : Empirical Efficiencies at : Peak Energy
Abundance limit : 80.00

Nuclide Line Activity Report

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : JMVNWIAC

Page : 2

Acquisition date : 22-JAN-2007 17:37:07

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	81.15	226	59	0.63	325.95	320	13	1.25E-01	10.1	2.04E+00	
0	276.42	48	13	0.76	1110.10	1104	13	2.67E-02	21.2	2.20E+00	
0	302.90	105	11	0.83	1216.44	1209	15	5.83E-02	12.0	2.21E+00	
0	355.96	282	7	1.04	1429.52	1422	15	1.56E-01	6.3	2.21E+00	T
0	383.91	41	16	1.06	1541.75	1537	12	2.30E-02	24.4	2.21E+00	

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : JMVNW1AC

Page : 3
Acquisition date : 22-JAN-2007 17:37:07

Nuclide	Half-life	Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
BA-133	10.50Y	0.01	356.00*	60.00	7.110E+02	9.28	Abun.
			390.00	100.00	---	Not Found	---
			% Abundances Found = 37.50				

Flag: "*" = Keyline

Configuration : \$DISK1:[GER4.SAMPLE]JMVNW1AC_220171737.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3,WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:07
 Sample ID : JMVNW1AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.42 0.0%
 Peak Width (FWHM) : 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Non-Identified Nuclides ----

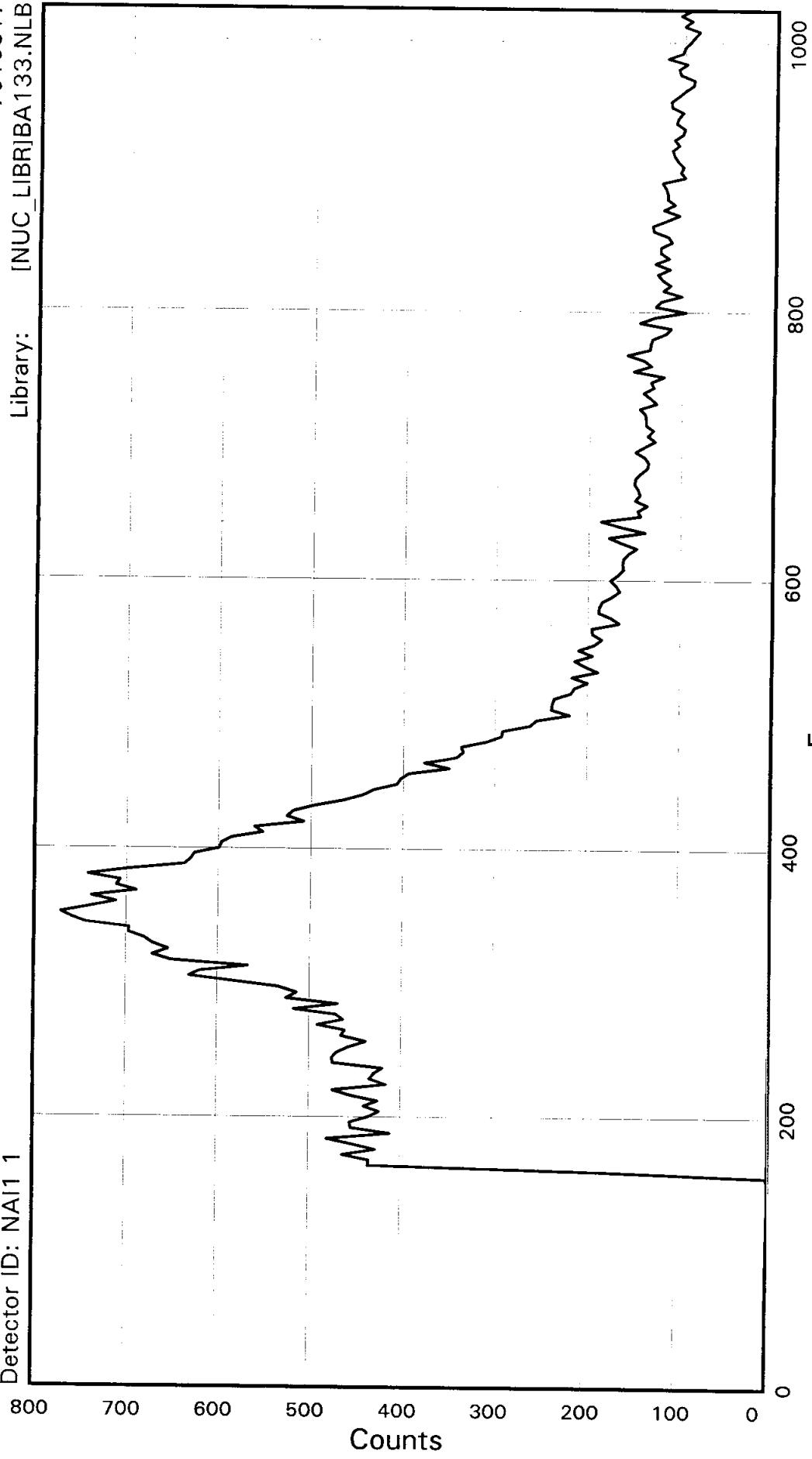
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
NI-59	0.000E+00		0.000E+00	2.371E+01	9.528E-01	0.000
I-129	-1.908E+02		1.337E+02	4.589E+02	1.263E+01	-0.416
BA-133	7.110E+02	+	6.599E+01	2.064E+02	9.674E+00	3.445
EU-152	-3.919E+00		3.380E+01	1.256E+02	3.036E+00	-0.031
PB-210	7.153E+01		2.529E+02	9.811E+02	2.636E+01	0.073
U-235LP	8.098E+01		1.097E+02	4.165E+02	9.948E+00	0.194
U-238DLP	4.813E+02		3.283E+02	1.342E+03	3.461E+01	0.359
AM-241	-1.416E+01		3.073E+01	1.103E+02	2.865E+00	-0.128
U-2382LP	-7.310E+01		2.371E+02	8.987E+02	2.223E+01	-0.081

STL Richland WA.

BA133

Sample ID: JMVNW1AC
Detector ID: NAI1 1

BatchID: 7016317
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 23-JAN-2007 13:21:35.38
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED
Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: Iter

SAMPLE IDENTIFICATION: JMVNW1AC

CONFIGURATION ID: NAI1:JMVNW1AC_230171321
TITLE : BA133
SAMPLE ID : JMVNW1AC

REPORT DATE: 23-JAN-07
ACQUIRE DATE: 23-JAN-07 13:21:35
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 3-JAN-2007 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]JMVNW1AC_230171321.CNF;1
Analyses by : NAI V3.0
Sample title : BA133
Sample date : 3-JAN-2007 12:00:00 Acquisition date : 23-JAN-2007 13:21:35
Sample ID : JMVNW1AC Sample quantity : 1.0000 sampl
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.66 0.0%
Sample Multiplier: 1.00 Rejection Coeff. : 0.00
Gain shift type : ITER Threshold Shift : No
Weighting type : DERIVED Calculated counts: No
Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	5.7	3.9	2.8	2.6	3.3	2.2	3.9	3.6
88:	3.3	1.1	-0.7	0.9	0.2	-0.8	0.4	2.6
96:	0.5	-2.8	-2.6	-1.7	-3.6	-0.5	-1.6	-2.7
104:	-2.7	-4.3	-3.0	-1.9	-2.2	-2.9	-4.0	-3.7
112:	-3.3	-2.5						

List of Suspicious Channels

81 82 83 84 85 86 87

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	6.62E+00	0.00E+00	1.03E+00
2	1.54E+00	0.00E+00	1.04E+00
3	8.75E-01	0.00E+00	1.05E+00

Brief Nuclide Activity Report
Sample ID : JMVNW1AC

Page : 3
Acquisition date : 23-JAN-2007 13:21:35

Brief Report

Nuclide	Activity	1-Sigma
DPM/sampl	Error	
BA-133	739.	8.41

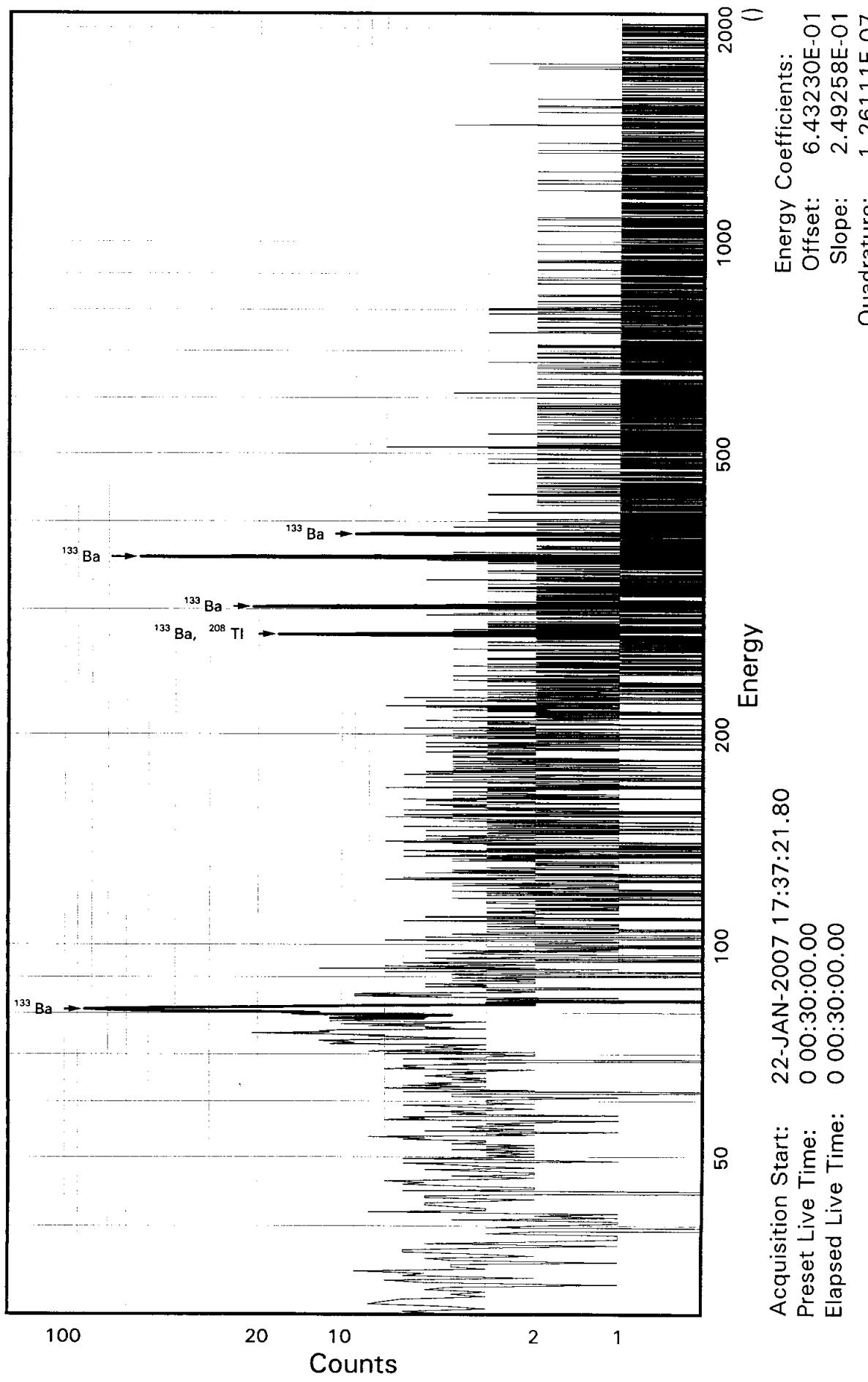
Total Activity :	739.	

STL Richland WA.

BA133

Sample ID: JMVN11AC
Detector ID: GER7 1

Batch ID: 7016317



SAMPLE IDENTIFICATION: JMVN11AC

CONFIGURATION ID: GER7:JMVN11AC_220171737
TITLE : BA133
SAMPLE ID : JMVN11AC

REPORT DATE: 22-JAN-07
ACQUIRE DATE: 22-JAN-07 17:37:21
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

ENERGY OFFSET: 6.4323E-01 keV
ENERGY SLOPE: 2.4926E-01 keV/C
ENERGY Q COEFF: 1.2611E-07 keV/C²
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 3-JAN-2007 12:00:00.00
CALIB DATE: 22-JAN-2007 05:13:26.39
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: 5.9759E-01 keV
FWHM SLOPE: 3.4471E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 22-JAN-2007 18:07:43

Configuration : \$DISK1:[GER7.SAMPLE]JMVN11AC_220171737.CNF;1
Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6
Sample title : BA133
Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:21
Sample ID : JMVN11AC Sample quantity : 1.0000 SAMPL
Sample type : Sample geometry : BA133T15
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.21 0.0%
Start energy : 20.58 End energy : 2051.03
Sensitivity : 5.00 Gaussian : 10.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	75.02*	10	43	0.44	298.34	294	10	5.57E-03	142.4	
2	0	81.12	317	81	0.89	322.83	313	19	1.76E-01	9.0	
3	0	276.64	74	14	0.89	1106.65	1098	19	4.13E-02	16.8	
4	0	302.85	88	23	1.18	1211.67	1205	13	4.90E-02	15.4	
5	0	356.03	252	26	1.14	1424.76	1417	15	1.40E-01	7.7	
6	0	383.83	46	0	1.78	1536.13	1530	13	2.56E-02	14.7	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER7.SAMPLE]JMVN11AC_220171737.CNF;1
 Analyses by : PEAK V16.9,PEAKEFF V2.2,ENBACK V1.6,NID V3.3
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:21
 Sample ID : JMVN11AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.21 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	317	33.00	1.923E+00	1.663E+03	1.669E+03	10.48
	276.40	74	6.90	2.076E+00	1.728E+03	1.734E+03	17.65
	302.84	88	17.80	2.078E+00	7.946E+02	7.974E+02	16.33
	356.00	252	62.05*	2.080E+00	6.502E+02	6.525E+02	9.40
	383.85	46	8.70	2.080E+00	8.473E+02	8.503E+02	15.70

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : JMVN11AC

Page : 2
Acquisition date : 22-JAN-2007 17:37:21

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	75.02	10	43	0.44	298.34	294	10	5.57E-03	****	1.91E+00	

Flags: "T" = Tentatively associated

Rejected Report
Sample ID : JMVN11AC

Page : 3
Acquisition date : 22-JAN-2007 17:37:21

Nuclide	Half-life	Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.754E+03	17.65	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
			% Abundances Found =		5.44		

Flag: "*" = Keyline

Configuration : \$DISK1:[GER7.SAMPLE]JMVN11AC_220171737.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.3, WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:21
 Sample ID : JMVN11AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.21 0.0%
 Peak Width (FWHM) : 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	6.525E+02	6.134E+01	5.789E+01	1.158E+00	11.271

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	1.428E+02		6.703E+01	3.334E+02	6.689E+00	0.428
NA-22	-5.172E+00		2.999E+00	4.659E+00	9.878E-02	-1.110
K-40	4.744E+01		7.446E+01	3.690E+02	7.927E+00	0.129
SC-46	-1.723E+00		4.296E+00	1.828E+01	3.832E-01	-0.094
CR-51	-4.610E+01		1.551E+02	5.623E+02	1.125E+01	-0.082
MN-54	5.291E+00		4.498E+00	2.249E+01	4.617E-01	0.235
CO-57	4.131E+00		1.166E+02	4.285E+02	8.857E+00	0.010
CO-58	-1.297E+01		6.952E+00	2.145E+01	4.396E-01	-0.605
FE-59	4.927E+00		1.108E+01	4.974E+01	1.041E+00	0.099
CO-60	5.153E+00		2.988E+00	1.848E+01	3.934E-01	0.279
ZN-65	1.425E+00		7.120E+00	3.420E+01	7.168E-01	0.042
SE-75	-1.463E+01		1.442E+01	5.020E+01	1.007E+00	-0.291
SR-85	-3.985E+01		1.361E+01	3.769E+01	7.574E-01	-1.058
Y-88	0.000E+00		0.000E+00	5.440E+00	1.198E-01	0.000
NB-94	6.689E+00		4.646E+00	2.324E+01	4.783E-01	0.288
NB-95	6.398E+00		7.207E+00	3.330E+01	6.801E-01	0.192
TC-95M	1.564E+01		2.280E+01	8.756E+01	1.771E+00	0.179
ZR-95	2.161E+01		1.165E+01	5.775E+01	1.179E+00	0.374
ZRNB-95	1.124E+01		1.220E+01	5.646E+01	1.153E+00	0.199
MO-99	3.861E+03		1.891E+03	7.539E+03	1.555E+02	0.512
RH-101	6.871E+00		1.497E+01	5.775E+01	1.169E+00	0.119
RH-102M	-7.054E+00		6.005E+00	2.056E+01	4.125E-01	-0.343
RU-103	1.755E+01		9.254E+00	4.416E+01	8.868E-01	0.397
RU-106DA	-8.176E+01		6.088E+01	2.058E+02	4.162E+00	-0.397
AG-108M	-8.336E+00		8.180E+00	2.859E+01	5.727E-01	-0.292
AG-110M	-6.802E+00		8.524E+00	3.136E+01	6.462E-01	-0.217
SN-113DA	2.392E+01		1.246E+01	5.643E+01	1.129E+00	0.424

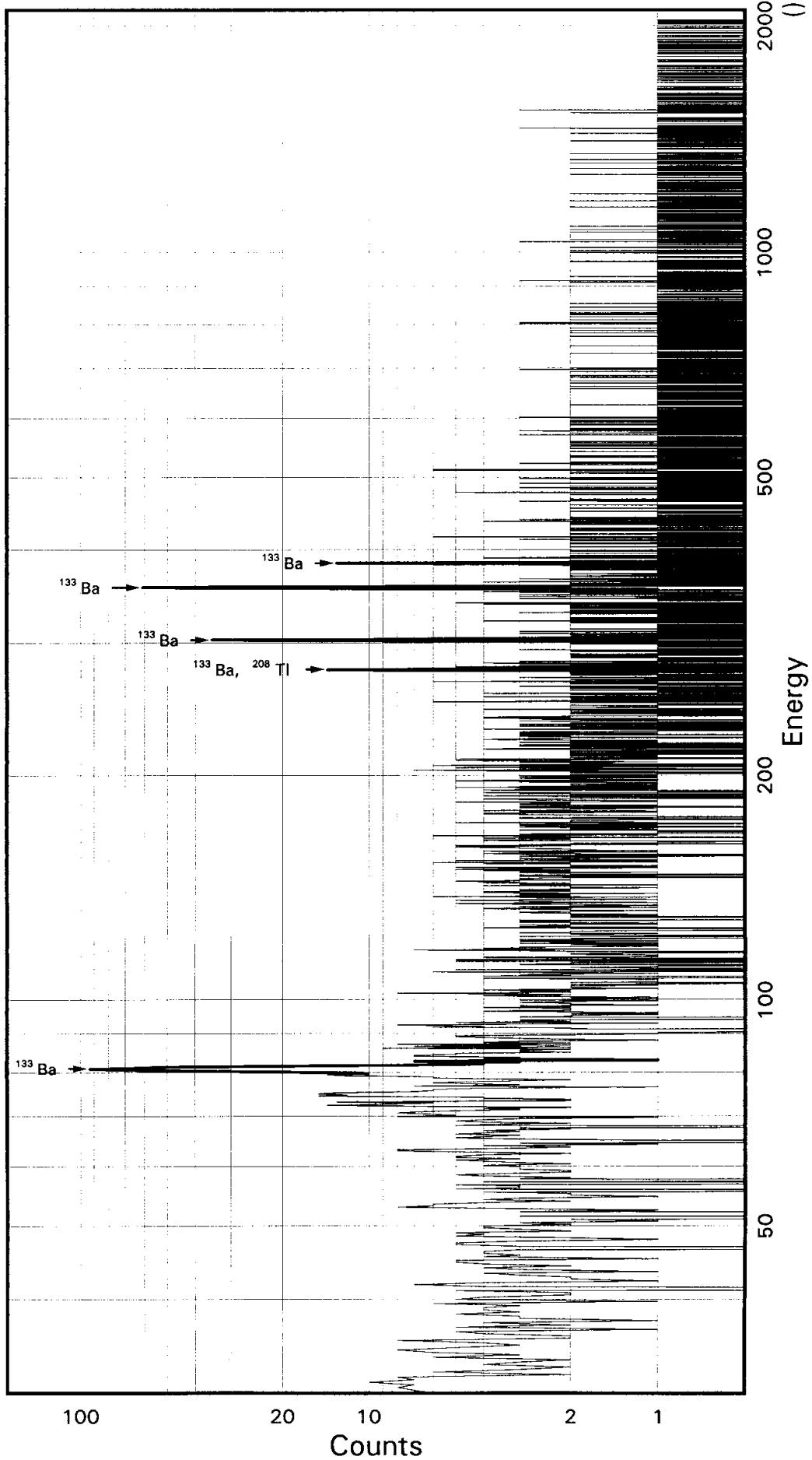
---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	-5.692E+00		6.702E+00	2.477E+01	5.004E-01	-0.230
SB-125	1.689E+01		1.988E+01	8.776E+01	1.757E+00	0.192
SN-126DA	4.594E+00		5.339E+00	2.411E+01	4.891E-01	0.191
I-131	-8.026E+01		5.043E+01	1.671E+02	3.342E+00	-0.480
CS-134	-8.597E+00		7.013E+00	2.346E+01	4.803E-01	-0.366
CS-137DA	-1.663E+00		6.338E+00	2.521E+01	5.111E-01	-0.066
LA-138	-8.049E+00		4.667E+00	6.962E+00	1.493E-01	-1.156
CE-139	2.204E-01		1.768E+01	6.360E+01	1.299E+00	0.003
BA-140	-4.308E+01		6.531E+01	2.397E+02	4.823E+00	-0.180
BALa-140	-2.035E+01		2.053E+01	7.591E+01	1.646E+00	-0.268
CE-141	-3.746E+01		3.786E+01	1.289E+02	2.653E+00	-0.291
CE-144	1.110E+02		1.171E+02	4.525E+02	9.369E+00	0.245
CEPR-144	2.272E+02		2.346E+02	9.073E+02	1.878E+01	0.250
PM-144	5.320E+00		6.057E+00	2.689E+01	5.436E-01	0.198
PM-146	4.451E+00		8.540E+00	3.682E+01	7.380E-01	0.121
EU-152	-1.399E+01		3.233E+01	1.164E+02	2.328E+00	-0.120
EU-154	-1.442E+01		8.360E+00	1.299E+01	2.754E-01	-1.110
EU-155	-9.976E+01		5.585E+01	1.820E+02	3.839E+00	-0.548
HF-181	5.188E+00		9.307E+00	4.001E+01	8.029E-01	0.130
BI-207	1.654E+01		6.960E+00	3.305E+01	6.662E-01	0.501
TL-208	-1.156E+01		8.481E+00	3.127E+01	6.310E-01	-0.370
BI-210M	-1.606E+01		1.606E+01	5.586E+01	1.121E+00	-0.288
BI-212	-2.102E+00		7.089E+01	2.977E+02	9.101E+00	-0.007
PB-212	-1.174E+01		2.466E+01	9.472E+01	1.905E+00	-0.124
BI-214	2.224E+01		1.633E+01	7.649E+01	1.546E+00	0.291
PB-214	-2.002E+01		3.287E+01	1.046E+02	2.092E+00	-0.191
RA-223	3.547E+01		6.376E+01	2.521E+02	5.056E+00	0.141
RA-224DA	-1.197E+01		2.514E+01	9.654E+01	1.942E+00	-0.124
RA-226DA	2.224E+01		1.633E+01	7.649E+01	1.546E+00	0.291
AC-227DA	-8.806E+01		8.973E+01	3.120E+02	6.279E+00	-0.282
AC-228	2.587E+00		1.938E+01	8.959E+01	1.850E+00	0.029
RA-228DA	2.604E+00		1.950E+01	9.016E+01	1.861E+00	0.029
TH-228DA	-3.279E+01		2.406E+01	8.873E+01	1.790E+00	-0.370
TH-232DA	-5.248E+00		7.587E+01	2.793E+02	5.586E+00	-0.019
TH-234DA	-5.205E+02		3.691E+02	6.923E+02	1.439E+01	-0.752
U-234DA	9.190E+00		5.302E+01	2.029E+02	4.063E+00	0.045
U-235HP	-1.126E+02		1.262E+02	4.314E+02	8.888E+00	-0.261
NP-237DA	4.009E+00		2.624E+01	9.866E+01	1.974E+00	0.041
U-238DA	-2.002E+01		3.287E+01	1.046E+02	2.092E+00	-0.191
U-238DHP	6.961E+01		4.296E+02	1.573E+03	3.503E+01	0.044
AM-241HP	-4.100E+01		4.202E+01	1.416E+02	3.177E+00	-0.290

STL Richland WA.
BA133

Sample ID: JMVN41AC
Detector ID: GER6 1

Batch ID: 7016317



Acquisition Start: 22-JAN-2007 17:37:34.31
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:
Offset: 8.00890E-02
Slope: 2.49485E-01
Quadrature: 3.01368E-09

SAMPLE IDENTIFICATION: JMVN41AC

CONFIGURATION ID: GER6:JMVN41AC_220171737
TITLE : BA133
SAMPLE ID : JMVN41AC

REPORT DATE: 22-JAN-07
ACQUIRE DATE: 22-JAN-07 17:37:34
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

ENERGY OFFSET: 8.0089E-02 keV
ENERGY SLOPE: 2.4949E-01 keV/C
ENERGY Q COEFF: 3.0137E-09 keV/C^2
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 3-JAN-2007 12:00:00.00
CALIB DATE: 22-JAN-2007 05:13:09.96
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: 2.3149E-01 keV
FWHM SLOPE: 6.2234E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 22-JAN-2007 18:07:58

Configuration : \$DISK1:[GER6.SAMPLE]JMVN41AC_220171737.CNF;1
Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6
Sample title : BA133
Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:34
Sample ID : JMVN41AC Sample quantity : 1.0000 SAMPL
Sample type : Sample geometry : BA133T15
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
Start energy : 20.04 End energy : 2044.07
Sensitivity : 5.00 Gaussian : 10.00
Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	74.95*	10	40	1.01	300.08	296	11	5.39E-03	144.5	
2	0	81.03	322	87	0.93	324.45	319	15	1.79E-01	8.9	
3	0	276.61	31	26	0.55	1108.38	1101	14	1.75E-02	38.0	
4	0	302.88	144	4	0.89	1213.67	1206	16	8.01E-02	8.9	
5	0	356.11	318	24	1.32	1427.02	1417	20	1.77E-01	6.8	
6	0	383.97	58	5	0.65	1538.68	1529	19	3.24E-02	15.9	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER6.SAMPLE]JMVN41AC_220171737.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.3
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:34
 Sample ID : JMVN41AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected DPM/SAMPL	Decay Corr DPM/SAMPL	1-Sigma %Error
BA-133	81.00	322	33.00	2.167E+00	1.501E+03	1.506E+03	10.41
	276.40	31	6.90	2.334E+00	6.505E+02	6.527E+02	38.40
	302.84	144	17.80	2.337E+00	1.156E+03	1.160E+03	10.39
	356.00	318	62.05*	2.339E+00	7.303E+02	7.328E+02	8.67
	383.85	58	8.70	2.338E+00	9.561E+02	9.594E+02	16.74

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : JMVN41AC

Page : 2
Acquisition date : 22-JAN-2007 17:37:34

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	74.95	10	40	1.01	300.08	296	11	5.39E-03	****	2.15E+00	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	6.600E+02	38.40	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
			% Abundances Found =		5.44		

Flag: "*" = Keyline

Configuration : \$DISK1:[GER6.SAMPLE]JMVN41AC_220171737.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.3, WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:34
 Sample ID : JMVN41AC Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.24 0.0%
 Peak Width (FWHM) : 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.328E+02	6.355E+01	4.890E+01	9.779E-01	14.988

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	4.289E+01		8.104E+01	3.313E+02	6.646E+00	0.129
NA-22	4.668E+00		4.573E+00	2.157E+01	4.566E-01	0.216
K-40	-2.124E+01		6.332E+01	3.132E+02	6.715E+00	-0.068
SC-46	6.224E-02		6.043E+00	2.466E+01	5.162E-01	0.003
CR-51	4.417E+01		1.156E+02	4.571E+02	9.145E+00	0.097
MN-54	2.847E+00		5.314E+00	2.283E+01	4.683E-01	0.125
CO-57	8.286E+01		1.097E+02	4.207E+02	8.689E+00	0.197
CO-58	-5.365E+00		5.900E+00	2.127E+01	4.357E-01	-0.252
FE-59	-6.956E+00		7.044E+00	2.614E+01	5.465E-01	-0.266
CO-60	-4.600E+00		4.052E+00	1.415E+01	3.007E-01	-0.325
ZN-65	1.872E+01		1.163E+01	5.403E+01	1.131E+00	0.347
SE-75	8.553E+00		1.562E+01	6.018E+01	1.207E+00	0.142
SR-85	-3.551E+01		1.200E+01	3.398E+01	6.827E-01	-1.045
Y-88	3.570E+00		2.532E+00	1.656E+01	3.638E-01	0.216
NB-94	2.825E+00		3.637E+00	1.759E+01	3.618E-01	0.161
NB-95	2.704E-01		7.309E+00	3.005E+01	6.134E-01	0.009
TC-95M	2.770E+01		1.955E+01	7.789E+01	1.575E+00	0.356
ZR-95	9.884E+00		8.520E+00	4.242E+01	8.653E-01	0.233
ZRNB-95	4.544E-01		1.229E+01	5.053E+01	1.032E+00	0.009
MO-99	-4.676E+02		1.588E+03	5.719E+03	1.179E+02	-0.082
RH-101	1.836E+01		1.390E+01	5.557E+01	1.125E+00	0.330
RH-102M	1.406E+01		6.608E+00	3.063E+01	6.144E-01	0.459
RU-103	-1.657E+00		9.699E+00	3.758E+01	7.544E-01	-0.044
RU-106DA	-7.159E+01		4.533E+01	1.446E+02	2.923E+00	-0.495
AG-108M	5.720E-01		8.278E+00	3.155E+01	6.319E-01	0.018
AG-110M	4.263E+00		3.023E+00	1.978E+01	4.071E-01	0.216
SN-113DA	2.905E+01		1.297E+01	5.744E+01	1.149E+00	0.506

---- Non-Identified Nuclides ----

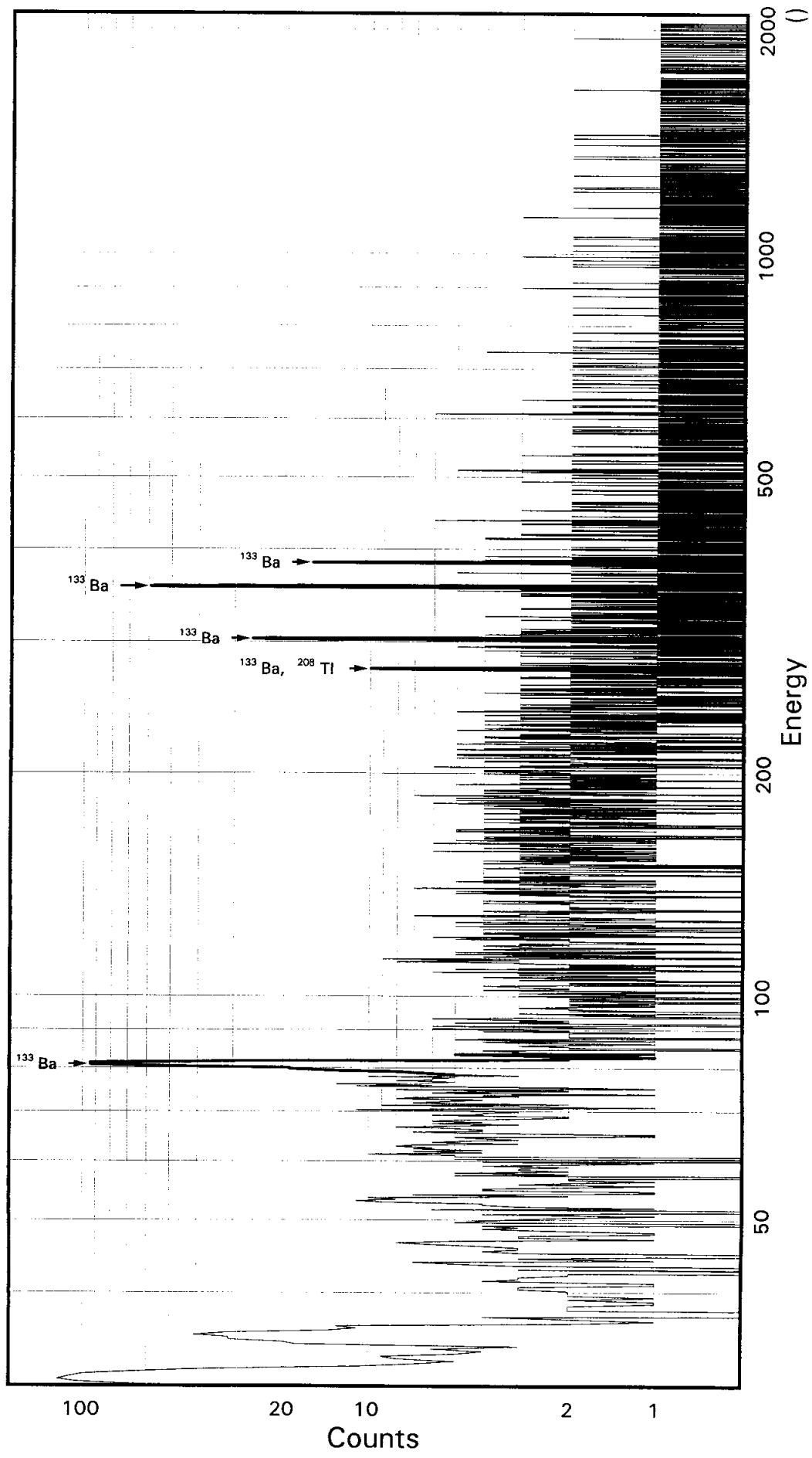
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	9.598E+00		7.483E+00	3.326E+01	6.717E-01	0.289
SB-125	-3.857E+01		2.145E+01	6.643E+01	1.330E+00	-0.581
SN-126DA	-2.730E+00		4.618E+00	1.758E+01	3.565E-01	-0.155
I-131	2.978E+01		5.134E+01	2.041E+02	4.082E+00	0.146
CS-134	3.459E+00		6.483E+00	2.750E+01	5.625E-01	0.126
CS-137DA	-2.563E-01		7.188E+00	2.812E+01	5.700E-01	-0.009
LA-138	2.456E-01		6.381E+00	2.745E+01	5.874E-01	0.009
CE-139	2.169E+01		1.428E+01	5.666E+01	1.156E+00	0.383
BA-140	-1.712E+01		6.325E+01	2.442E+02	4.913E+00	-0.070
BALa-140	2.709E+01		2.443E+01	1.200E+02	2.596E+00	0.226
CE-141	2.188E+01		3.522E+01	1.331E+02	2.737E+00	0.164
CE-144	5.299E+00		1.036E+02	3.845E+02	7.952E+00	0.014
CEPR-144	6.013E+00		2.068E+02	7.670E+02	1.586E+01	0.008
PM-144	1.885E+00		4.505E+00	1.997E+01	4.037E-01	0.094
PM-146	1.160E+00		8.662E+00	3.466E+01	6.947E-01	0.033
EU-152	1.252E+01		2.847E+01	1.111E+02	2.223E+00	0.113
EU-154	1.301E+01		1.275E+01	6.013E+01	1.273E+00	0.216
EU-155	-6.608E+01		4.392E+01	1.419E+02	2.988E+00	-0.466
HF-181	-1.157E+00		1.159E+01	4.450E+01	8.928E-01	-0.026
BI-207	-2.070E+00		5.363E+00	2.048E+01	4.128E-01	-0.101
TL-208	-7.547E-01		7.388E+00	2.835E+01	5.719E-01	-0.027
BI-210M	1.391E+01		1.818E+01	7.008E+01	1.406E+00	0.198
BI-212	-1.170E+02		6.876E+01	2.046E+02	6.253E+00	-0.572
PB-212	1.543E+01		2.219E+01	8.987E+01	1.807E+00	0.172
BI-214	1.990E+00		1.213E+01	5.178E+01	1.046E+00	0.038
PB-214	4.581E+00		3.227E+01	1.003E+02	2.006E+00	0.046
RA-223	-8.244E+01		6.336E+01	2.166E+02	4.343E+00	-0.381
RA-224DA	1.572E+01		2.262E+01	9.160E+01	1.842E+00	0.172
RA-226DA	1.990E+00		1.213E+01	5.178E+01	1.046E+00	0.038
AC-227DA	-1.740E+02		8.640E+01	2.686E+02	5.403E+00	-0.648
AC-228	2.743E+01		2.297E+01	9.981E+01	2.059E+00	0.275
RA-228DA	2.760E+01		2.312E+01	1.004E+02	2.072E+00	0.275
TH-228DA	-2.141E+00		2.096E+01	8.044E+01	1.623E+00	-0.027
TH-232DA	1.468E+02		6.304E+01	2.763E+02	5.526E+00	0.531
TH-234DA	-3.170E+02		8.202E+02	3.149E+03	6.536E+01	-0.101
U-234DA	-2.957E+01		3.721E+01	1.331E+02	2.664E+00	-0.222
U-235HP	1.578E+02		1.083E+02	4.263E+02	8.775E+00	0.370
NP-237DA	7.924E+00		2.097E+01	8.206E+01	1.642E+00	0.097
U-238DA	4.581E+00		3.227E+01	1.003E+02	2.006E+00	0.046
U-238DHP	2.194E+02		3.407E+02	1.253E+03	2.781E+01	0.175
AM-241HP	-1.438E+01		3.272E+01	1.143E+02	2.555E+00	-0.126

STL Richland WA.

BA133

Sample ID: JMW771AA
Detector ID: GER8 1

Batch ID: 7016317



Acquisition Start: 22-JAN-2007 17:37:49.89
Preset Live Time: 0 00:30:00.00
Elapsed Live Time: 0 00:30:00.00

Energy Coefficients:
Offset: 4.05146E-01
Slope: 2.49820E-01
Quadrature: 1.73391E-08

SAMPLE IDENTIFICATION: JMW771AA

CONFIGURATION ID: GER8:JMW771AA_220171737
TITLE : BA133
SAMPLE ID : JMW771AA

REPORT DATE: 22-JAN-07
ACQUIRE DATE: 22-JAN-07 17:37:49
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY: BA133T15

ENERGY OFFSET: 4.0515E-01 keV
ENERGY SLOPE: 2.4982E-01 keV/C
ENERGY Q COEFF: 1.7339E-08 keV/C^2
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 80.00 %
ENERGY TOLERANCE: 1.500 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 3-JAN-2007 12:00:00.00
CALIB DATE: 22-JAN-2007 05:13:43.81
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: 9.8689E-01 keV
FWHM SLOPE: 1.9921E-02 sqr keV
ITERATIONS: 10
GAUSSIAN SENSITIVITY: 10.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]QRL.NLB

VMS Peak Search Report V1.9 Generated 22-JAN-2007 18:08:14

Configuration : \$DISK1:[GER8.SAMPLE]JMW771AA_220171737.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:49
 Sample ID : JMW771AA Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.22 0.0%
 Start energy : 20.39 End energy : 2048.09
 Sensitivity : 5.00 Gaussian : 10.00
 Critical level : No

Pk	It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	Fit
1	0	30.80	583	159	1.22	121.66	115	18	3.24E-01	6.8	
2	0	35.06	186	40	1.08	138.72	132	14	1.03E-01	10.4	
3	0	53.12	46	21	2.12	211.02	204	14	2.54E-02	25.9	
4	0	80.91	493	76	1.10	322.25	312	22	2.74E-01	6.4	
5	0	276.26	55	4	1.39	1104.12	1096	16	3.06E-02	15.7	
6	0	302.89	127	5	1.06	1210.71	1201	18	7.07E-02	9.7	
7	0	355.99	330	11	1.20	1423.24	1414	16	1.83E-01	6.0	
8	0	383.55	70	7	1.07	1533.51	1525	16	3.87E-02	15.0	

Flag: "*" = Peak area was modified by background subtraction

Configuration : \$DISK1:[GER8.SAMPLE]JMW771AA_220171737.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.3
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:49
 Sample ID : JMW771AA Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.22 0.0%
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00

Nuclide Line Activity Report

Nuclide Type: FP

Nuclide	Energy	Area	%Abn	%Eff	Uncorrected	Decay	Corr	1-Sigma
					DPM/SAMPL	DPM/SAMPL	%Error	
BA-133	81.00	493	33.00	2.202E+00	2.262E+03	2.270E+03		8.40
	276.40	55	6.90	2.371E+00	1.123E+03	1.127E+03		16.62
	302.84	127	17.80	2.374E+00	1.004E+03	1.007E+03		11.09
	356.00	330	62.05*	2.376E+00	7.453E+02	7.479E+02		8.05
	383.85	70	8.70	2.375E+00	1.123E+03	1.127E+03		15.94

Flag: "*" = Keyline

Unidentified Energy Lines
Sample ID : JMW771AA

Page : 2
Acquisition date : 22-JAN-2007 17:37:49

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw	Cts/Sec	%Err	%Eff	Flags
0	30.80	583	159	1.22	121.66	115	18	3.24E-01	6.8	1.93E+00	
0	35.06	186	40	1.08	138.72	132	14	1.03E-01	10.4	1.97E+00	
0	53.12	46	21	2.12	211.02	204	14	2.54E-02	25.9	2.10E+00	

Flags: "T" = Tentatively associated

Nuclide	Half-life	Ratio	Energy	%Abund	Activity (DPM/SAMPL)	1-Sigma %Error	Rejected by
TL-208	1.41E+10Y	0.00	277.35	6.80	1.139E+03	16.62	Abun.
			510.84	21.60	---	Not Found	---
			583.14*	84.20	---	Not Found	---
			860.37	12.46	---	Not Found	---
			% Abundances Found =		5.44		

Flag: "*" = Keyline

Configuration : \$DISK1:[GER8.SAMPLE]JMW771AA_220171737.CNF;1
 Analyses by : PEAK V16.9, PEAKEFF V2.2, ENBACK V1.6, NID V3.3, WTMEAN/KEY V1.8
 Analyses by : MINACT V2.8
 Sample title : BA133
 Sample date : 3-JAN-2007 12:00:00 Acquisition date : 22-JAN-2007 17:37:49
 Sample ID : JMW771AA Sample quantity : 1.0000 SAMPL
 Sample type : Sample geometry : BA133T15
 Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.22 0.0%
 Peak Width (FWHM) : 3.00 Confidence level : 5.00 %
 Energy tolerance : 1.50 Half life ratio : 8.00
 Errors propagated: Yes Systematic Error : 5.00 %
 Efficiency type : Empirical Efficiencies at : Peak Energy
 Abundance limit : 80.00 WTM error limit : 3.00

Combined Activity-MDA Report

---- Identified Nuclides ----

Nuclide	Activity (DPM/SAMPL)	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BA-133	7.479E+02	6.021E+01	4.637E+01	9.275E-01	16.127

---- Non-Identified Nuclides ----

Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
BE-7	-9.248E+01		7.513E+01	2.601E+02	5.218E+00	-0.356
NA-22	1.418E+00		4.020E+00	1.808E+01	3.826E-01	0.078
K-40	-4.032E+01		3.311E+01	1.516E+02	3.248E+00	-0.266
SC-46	1.782E+00		5.694E+00	2.427E+01	5.080E-01	0.073
CR-51	1.152E+02		1.208E+02	4.933E+02	9.871E+00	0.234
MN-54	5.133E+00		4.711E+00	2.193E+01	4.497E-01	0.234
CO-57	-1.114E+02		1.215E+02	4.101E+02	8.468E+00	-0.272
CO-58	4.757E+00		4.607E+00	2.249E+01	4.605E-01	0.212
FE-59	1.054E+01		7.828E+00	4.200E+01	8.779E-01	0.251
CO-60	-1.545E+00		1.547E+00	4.056E+00	8.618E-02	-0.381
ZN-65	-5.988E+00		8.604E+00	3.286E+01	6.876E-01	-0.182
SE-75	5.219E+00		1.471E+01	5.716E+01	1.147E+00	0.091
SR-85	-9.441E+00		9.619E+00	3.376E+01	6.783E-01	-0.280
Y-88	0.000E+00		0.000E+00	4.747E+00	1.042E-01	0.000
NB-94	-4.766E+00		4.482E+00	1.552E+01	3.191E-01	-0.307
NB-95	6.187E+00		5.605E+00	2.750E+01	5.612E-01	0.225
TC-95M	-3.830E+01		2.079E+01	6.769E+01	1.368E+00	-0.566
ZR-95	-1.639E+01		8.651E+00	2.343E+01	4.780E-01	-0.700
ZRNB-95	1.040E+01		9.426E+00	4.624E+01	9.438E-01	0.225
MO-99	-1.030E+03		1.807E+03	6.215E+03	1.281E+02	-0.166
RH-101	-6.658E+00		1.544E+01	5.532E+01	1.120E+00	-0.120
RH-102M	7.990E-01		6.213E+00	2.505E+01	5.025E-01	0.032
RU-103	-4.049E+00		6.804E+00	2.641E+01	5.303E-01	-0.153
RU-106DA	3.078E+01		5.179E+01	2.252E+02	4.552E+00	0.137
AG-108M	-1.082E+01		9.431E+00	3.154E+01	6.317E-01	-0.343
AG-110M	-3.379E-01		5.279E+00	2.257E+01	4.645E-01	-0.015
SN-113DA	1.749E+01		1.028E+01	4.630E+01	9.263E-01	0.378

---- Non-Identified Nuclides ----

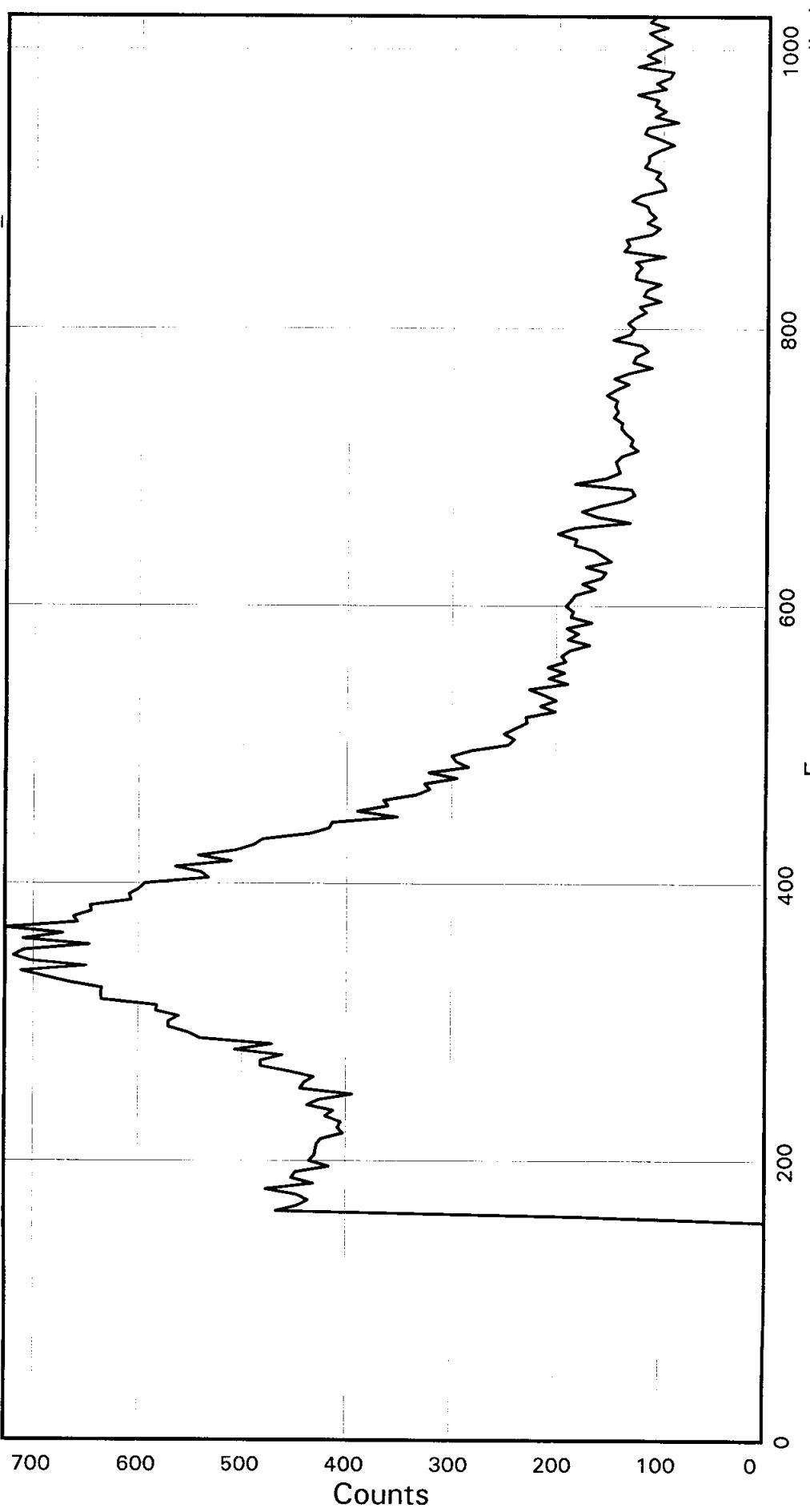
Nuclide	Key-Line Activity (DPM/SAMPL)	K.L. Ided	Act error	MDA (DPM/SAMPL)	MDA error	Act/MDA
SB-124	-2.036E+00		6.401E+00	2.505E+01	5.059E-01	-0.081
SB-125	-2.288E+00		1.986E+01	7.665E+01	1.535E+00	-0.030
SN-126DA	3.243E+00		5.385E+00	2.290E+01	4.642E-01	0.142
I-131	3.308E+01		3.877E+01	1.635E+02	3.269E+00	0.202
CS-134	1.653E+00		2.997E+00	1.587E+01	3.246E-01	0.104
CS-137DA	-2.450E-03		5.796E+00	2.358E+01	4.778E-01	0.000
LA-138	2.147E+00		3.960E+00	2.088E+01	4.467E-01	0.103
CE-139	-2.748E+00		1.684E+01	5.923E+01	1.209E+00	-0.046
BA-140	5.621E+01		6.193E+01	2.706E+02	5.443E+00	0.208
BALa-140	-8.290E+00		1.984E+01	8.366E+01	1.809E+00	-0.099
CE-141	-6.341E-01		3.732E+01	1.331E+02	2.738E+00	-0.005
CE-144	1.310E+02		1.038E+02	4.039E+02	8.351E+00	0.324
CEPR-144	2.621E+02		2.076E+02	8.077E+02	1.670E+01	0.324
PM-144	5.049E+00		4.029E+00	2.002E+01	4.047E-01	0.252
PM-146	-5.878E+00		1.004E+01	3.611E+01	7.238E-01	-0.163
EU-152	-3.619E+01		3.114E+01	1.052E+02	2.104E+00	-0.344
EU-154	3.952E+00		1.121E+01	5.040E+01	1.066E+00	0.078
EU-155	-8.712E+01		5.785E+01	1.889E+02	3.977E+00	-0.461
HF-181	-1.856E-01		8.941E+00	3.599E+01	7.221E-01	-0.005
BI-207	-3.532E-01		5.642E+00	2.243E+01	4.521E-01	-0.016
TL-208	-1.107E+01		6.601E+00	2.201E+01	4.440E-01	-0.503
BI-210M	-3.273E+01		1.681E+01	5.294E+01	1.062E+00	-0.618
BI-212	-2.353E+01		6.574E+01	2.605E+02	7.962E+00	-0.090
PB-212	-9.317E+00		2.214E+01	8.105E+01	1.630E+00	-0.115
BI-214	3.807E+01		1.805E+01	8.223E+01	1.661E+00	0.463
PB-214	-3.341E+01		2.781E+01	8.785E+01	1.757E+00	-0.380
RA-223	5.892E+01		6.313E+01	2.512E+02	5.038E+00	0.235
RA-224DA	-9.496E+00		2.257E+01	8.262E+01	1.662E+00	-0.115
RA-226DA	3.807E+01		1.805E+01	8.223E+01	1.661E+00	0.463
AC-227DA	-8.584E+01		8.350E+01	2.884E+02	5.802E+00	-0.298
AC-228	9.696E-01		1.443E+01	6.269E+01	1.293E+00	0.015
RA-228DA	9.757E-01		1.453E+01	6.309E+01	1.301E+00	0.015
TH-228DA	-3.140E+01		1.873E+01	6.246E+01	1.260E+00	-0.503
TH-232DA	-9.892E-01		5.828E+01	2.212E+02	4.423E+00	-0.004
TH-234DA	6.785E+02		4.994E+02	2.689E+03	5.580E+01	0.252
U-234DA	1.313E+01		4.333E+01	1.756E+02	3.517E+00	0.075
U-235HP	4.761E+01		1.188E+02	4.321E+02	8.892E+00	0.110
NP-237DA	2.316E+01		2.214E+01	8.958E+01	1.793E+00	0.258
U-238DA	-3.341E+01		2.781E+01	8.785E+01	1.757E+00	-0.380
U-238DHP	-3.937E+02		4.754E+02	1.691E+03	3.750E+01	-0.233
AM-241HP	-6.990E+01		4.258E+01	1.398E+02	3.125E+00	-0.500

STL Richland WA.

BA133

Sample ID: JMW771AC
Detector ID: NAI1 1

BatchID: 7016317
Library: [NUC_LIBR]BA133.NLB



Acquisition Start: 22-JAN-2007 18:35:34.13
Preset Live Time: 0 00:30:00
Elapsed Live Time: 0 00:30:00
Weighting: DERIVED

Start Channel: 80
End Channel: 113
Iterations: 5
Gain shift: Iter

SAMPLE IDENTIFICATION: JMW771AC

CONFIGURATION ID: NAI1:JMW771AC_220171835
TITLE : BA133
SAMPLE ID : JMW771AC

REPORT DATE: 22-JAN-07
ACQUIRE DATE: 22-JAN-07 18:35:34
ELAPSED LIVE TIME: 1800.0 Sec
PRESET LIVE TIME: 0 00:30:00

SAMPLE QUANTITY: 1.0000E+00
SAMPLE GEOMETRY:

ENERGY OFFSET: 0.0000E+00 keV
ENERGY SLOPE: 4.0000E+00 keV/C
ENERGY Q COEFF: 0.0000E+00 keV/C²
PEAK SENSITIVITY: 5.000

ABUNDANCE LIMIT: 75.00 %
ENERGY TOLERANCE: 20.000 keV
VARIABLE PEAK WIDTH: 3.00

SAMPLE DATE: 22-NOV-2006 12:00:00.00
CALIB DATE: 17-NOV-1993 10:39:59.60
ELAPSED LIVE TIME: 0 00:30:00
ELAPSED REAL TIME: 0 00:30:00

UNITS: SAMPL
SAMPLE TYPE:

FWHM OFFSET: -.2302E+02 keV
FWHM SLOPE: 5.7163E+00 sqr keV
ITERATIONS: 5
GAUSSIAN SENSITIVITY: 35.00 %

HALF-LIFE RATIO: 8.00
ACTIVITY MULTIPLIER: 2.2200E+06
LIBRARY: [NUC_LIBR]BA133.NLB

Configuration : RDND06\$DKA100:[NAI1.SAMPLE]JMW771AC_220171835.CNF;1
Analyses by : NAI V3.0
Sample title : BA133
Sample date : 22-NOV-2006 12:00:00 Acquisition date : 22-JAN-2007 18:35:34
Sample ID : JMW771AC Sample quantity : 1.0000 samp
Elapsed live time: 0 00:30:00.00 Elapsed real time: 0 00:30:00.66 0.0%
Sample Multiplier: 1.00 Rejection Coeff. : 0.00
Gain shift type : ITER Threshold Shift : No
Weighting type : DERIVED Calculated counts: No
Iterations : 5

NAI Residuals Report

Ratio of Residuals Over Standard Deviation Per Channel

80:	4.0	3.2	3.4	4.2	4.5	0.7	2.7	3.0
88:	3.0	-0.6	-0.2	-0.4	2.8	-1.6	0.1	-0.5
96:	-0.2	-1.7	-1.6	-1.4	-2.4	-2.4	-2.9	-1.1
104:	-3.4	-1.1	-2.6	-2.4	-1.8	-3.5	-3.6	-2.6
112:	-4.7	-2.0						

List of Suspicious Channels

81 82 83 87

Iteration	Chi-Squared	Threshold Shift	Gain Shift
1	6.50E+00	0.00E+00	1.02E+00
2	2.37E+00	0.00E+00	1.04E+00
3	7.94E-01	0.00E+00	1.05E+00

Brief Report

Nuclide	Activity	1-Sigma
	DPM/sampl	Error
BA-133	698.	7.94
Total Activity :	698.	